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**The Effect of Martial Arts Practice on Global Self-Esteem in People
with Visual Impairment and the Associated Mechanisms and
Strategies**

by

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ABSTRACT

The effect of exercise programmes on psychosocial characteristics, namely self-esteem, of people with visual impairment (VI) is limited. Martial arts practice has been found to improve global self-esteem among different age groups and among people with different abilities, but not for people with VI. This presents a notable gap in the research literature on people with VI. This thesis conducted three studies with the aim of investigating whether martial arts practice improves self-esteem in people with VI, including martial arts mechanisms and strategies for self-esteem improvement.

Study one (n = 5) investigated the effect of a martial arts (karate) 10-week programme on the exercise and self-esteem model components (EXSEM) in young adults with VI (age range 19-40 years) following a non-concurrent multiple baseline approach. Visual inspection and graphical approach analysis showed that four participants improved their global self-esteem. Physical self-worth improved for all five participants. Exercise self-efficacy was improved in three participants whereas the other two had high exercise self-efficacy before participation in the karate programme. Exercise self-efficacy and physical self-worth maintained higher scores than the baseline for all five participants for 3 months upon completing the programme. The 3-month follow up results of global self-esteem were lower than the baseline scores for two participants whereas the other three participants achieved higher global self-esteem scores than the baseline scores.

Study 2 (n = 12) aimed to identify the mechanisms for self-esteem improvement from the perspective of martial artists with VI following a narrative approach. Results identified two main factors that contributed in the improvement of self-esteem found in this group. Firstly, social self-esteem impacted global self-esteem as instructors unconditionally accepted the martial artists with VI, motivated them and created relationships based on trust. In addition, participants reported that *team work* in the dojo, *trustful relationships* among martial arts peers, and *feeling respected* impacted their social self-esteem. The resultant was improved global self-esteem of the martial artists with VI. The second factor identified showed that global self-esteem improvement was related to intellectual self-esteem, as the martial artists increased their self-achievement awareness and body and spatial awareness and thus helped martial artists in achieving their maximal potential.

Study 3 (n = 6) aimed to provide strategies that martial arts instructors utilize to improve self-esteem of their students with VI using an interpretative phenomenological approach (IPA).

Participants reported that the first step for global self-esteem improvement of martial artist with VI was social inclusion which needed to be rooted in a personal perception about the abilities of individuals with VI. Most of the strategies that were utilized by the instructors were focused either on social relationships, for example peer tutoring, or martial arts philosophy such as teaching real situations. Furthermore, instructors reported that improvement of the other cognitive and psychological characteristics, namely body awareness and self-confidence improvement, positively affected global self-esteem of individuals with VI.

Supporting the multidimensional hierarchical construct of self-esteem, this thesis reports a positive influence of martial arts styles on social self-esteem, physical self-worth, intellectual self-esteem, and consequently global self-esteem in people with VI. Therefore, it is recommended that instructors focus on these three domains to improve global self-esteem of people with VI.

Declaration

I hereby declare that the following thesis has been composed by me, and that this is my own work.

I declare that this thesis has not been submitted for any other degree or professional qualification.

Samir H. Qasim

Signed.....

Date.....

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Publications and Presentations

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2. Qasim, S., Ravenscroft, J., & Sproule, J. (2013). The effect of karate practice on self-esteem in young adults with visual impairment: A case study. *Oral presentation at the '7th SELF Biennial International Conference' and 'ERAS Conference'*. Singapore, 9-11 September 2013.
3. Qasim, S., Ravenscroft, J., & Sproule, J. (2013). Evaluation criteria of martial Arts and self related research. *Oral presentation at the '7th SELF Biennial International Conference' and 'ERAS Conference'*. Singapore, 9-11 September 2013.
4. Qasim, S., Ravenscroft, J., & Sproule, J. (2013). The effect of karate practice on self-esteem in adolescents who are blind: A pilot study. *Oral presentation at the 19th International Symposium of Adapted Physical Activity*. Istanbul, 19-23 July 2013.

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Chapter 1: Introduction

Chapter overview

This chapter provides an introduction to the thesis. Primarily I will highlight the motivations for conducting this particular research. This chapter will introduce the reader to a rationale of each study insomuch that what each chapter contains and how the chapters' coherence was followed based on the scientific justification will be presented. Within this description, I will briefly provide a literature rationale for investigating martial arts mechanism and strategies for self-esteem improvement in people with visual impairment (VI). The second part of this chapter will illustrate an overview of the thesis and briefly discuss general methodological considerations. Finally, the main findings and future research ideas will be illustrated.

1.1 Motivations and rationale for studying this topic

For the purposes of my Masters studies I investigated the effect of karate practice on physical ability of children with VI. At that point, I found that all literature related to exercise and people with VI focused on physical variables. Unfortunately, the constant evidence shows that children, adolescents, and adults with VI are often less physically active than their sighted peers (Atkinson & Black, 2006; Longmuir & Bar-Or, 2000; Willis, Jefferys, Vitale, & Ramulu, 2012). This insufficient activity is mainly due to social barriers, such as non-academic preparation, the lack of equipment, no one to do activities with, or being made fun of (Lieberman, Houston-Wilson, & Kozub, 2002; Stuart, Lieberman, & Hand, 2006). Accordingly, it is not surprising that individuals with VI do not value physical activity as an important part of their lives (Shapiro, Moffett, Lieberman, & Dummer, 2008). Leading passive lives, being left on the bench during PE classes, or not being able to joining different exercises or sport clubs may create or increase the feeling of exclusion. According to Maslow's (1987) hierarchy of human needs, feeling included is a precondition for having high self-esteem. In addition, both physical and social domains are important components for the global self-esteem improvement across all age groups (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986).

The research shows a contradiction regarding the global self-esteem of children and adolescents with VI (Datta, 2014). While Pierce and Wardle (1996) claimed that children with VI have low self-esteem due to social exclusion, Obiakor and Stile (1990) did not find evidence to support this claim. By contrast, Papadopoulos, Montgomery, and Chronopoulou

(2013) found that young adults with VI have lower global self-esteem than their sighted peers. Therefore, with respect to all research disciplines, I decided to investigate whether physical activity may improve self-esteem in young adults with VI, but more importantly identifying all necessary and sufficient factors for self-esteem improvement.

Physical activity has been suggested as one of the potential methods for self-esteem improvement. According to the exercise and self-esteem model (EXSEM), exercise participation improves exercise self-efficacy which improves physical self-worth and consequently global self-esteem (Sonstroem, Harlow, & Josephs, 1994). However, it is not clear if every physical activity would improve self-esteem or what the conditions are that need to be met in order for this improvement to occur. Martial arts scholars and researchers (Vertonghen & Theeboom, 2010; Winkle & Ozmun, 2001) claimed that martial arts could be one of the best activities for self-esteem improvement. Research in the psychosocial context of martial arts however suggest inconsistent results. In order to examine the effect of martial arts practice on self-esteem I conducted a systematic review examining quality of the studies that investigated the effect of martial arts practice on the components of the EXSEM. Although the review did not identify reasons for self-esteem improvement, most of the studies (high and medium quality studies) indicated that martial arts practice is an effective activity for improving self-esteem in sighted people.

Based on the literature review, I decided to conduct three studies in which study one (chapter 4) would investigate the effect of martial arts practice on self-esteem in young adults with VI. I aimed to investigate whether martial arts practice may improve self-esteem in young adults with VI. Young adults were initially selected as evidence shows that adults with VI need to be more physically active (Holbrook, Caputo, Perry, Fuller, & Morgan, 2009; Kakiyama, Koda, & Matsuda, 1999; Willis, et al., 2012). Importantly, the lack of physical activity of adults with VI is mostly due to social barriers. While individuals with VI cannot be physically active because of needed additional support (English Federation of Disability Sport, 2013), Bredahl (2013) found that adults with VI do not want to be physically active because of previous experience of failing, not being listened to, and not being included. In addition, previous research reported that young adults with VI have lower self-esteem than their sighted peers (Papadopoulos, et al., 2013).

Thereafter, I introduced a 10-week martial arts programme to five ($n = 5$) young adults with VI to investigate global self-esteem change through the EXSEM and another martial arts

related domains, namely social, intellectual, and moral self following a multiple baseline approach. These three additional domains (social, intellectual, and moral) were selected as previous research showed their link to the martial arts practice (Jones, Mackay, & Peters, 2006; Lantz, 2002; Ryan, 2008). Results of this study showed that martial arts practice may improve self-esteem in people with VI.

It was also interesting to note that literature had not explored mechanisms for self-esteem improvement. Previous research did not address mechanisms and reasons for the improvement in global self-esteem or self-esteem domains. According to Biddle and Mutrie (2008) underlying mechanisms related to the positive effects of exercise (e.g. martial arts) on psychosocial wellbeing (e.g. self-esteem) are not yet known and need further investigation. In addition, exercise and sport psychologists still need to identify which processes produce which results, for which participants, and under which circumstances (Coalter, 2007).

Thus, following study one, in chapter 5, I conducted a study that extended the first study by exploring further the relationship between martial arts practice and self-esteem. In this chapter I will discuss the mechanisms for self-esteem improvement in people with VI through interviewing twelve ($n = 12$) advanced martial artists with VI trying to present psychosocial explanation for self-esteem improvement based on individual experience. Using a narrative approach, this study attempted to understand what is happening in the black box of the martial arts training that may result in the self-esteem improvement of people with VI. Results of this study showed that two self domains are important for self-esteem improvement; social and intellectual domain.

Furthermore, strategies that sport coaches/teachers use when teaching people with VI are limited in the literature. Some books and textbooks (e.g. Lieberman, Ponchillia, & Ponchillia, 2013; Sherrill, 2004) provided general guidelines, however, detailed information did not exist. Therefore, I became interested in investigating a relationship between martial arts practice and psychosocial characteristics of people with VI but simultaneously trying to explore the easiest way to teach people with VI so they would have maximum physical and psychosocial benefits from practicing martial arts. This may be one of the crucial elements for self-esteem improvement as Jones, Mackay, and Peters (2006) found that martial arts instructors are one of the most important factors for increasing students' motivation to practice martial arts. They further reported that teaching communication is the key component of effective teaching, suggesting that having effective instructors is more

important than practicing a certain style. Consequently, in parallel to the second study, I conducted a third (chapter 6) that aimed to investigate the strategies that martial arts instructors use when teaching people with VI that may lead to self-esteem improvement. For the purposes of this study, I interviewed six ($n = 6$) martial arts instructors following an interpretation phenomenological analysis (IPA). Results of this last study revealed the importance of social, intellectual and physical self domains.

1.2 Overview of the thesis and methodological considerations

This thesis consists of six additional chapters divided into three phases. The first phase will begin within the next chapter (chapter 2) in which I will critically discuss the main three components of the thesis; people with VI, self-esteem, and martial arts. A systematic review of the studies that investigated the effect of martial arts practice on the components of the EXSEM will be presented in chapter 3. The subsequent three chapters (4 – 6) present the three studies designed to answer the research questions.

However, it is important to mention that different types of research questions existed, and therefore a mixed methods design was used. Mixed methods design can be conducted within one study or alternatively within several studies (Tashakkori & Creswell, 2007) as it was case in the thesis. Yet maintaining a balance between quantitative and qualitative designs may be not easy for the researchers since each of them is based on different philosophical assumptions.

Quantitative designs have been traditionally conducted by the researchers who practice more positivistic approaches whereas qualitative designs have been traditionally conducted by those who practice more constructivism (Henwood, 1996). This means that in a positivist paradigm, a relationship between independent and dependent variables can be accurately measured free from bias and independent from the researcher. By contrast, participants within a constructive paradigm construct and tell their stories, beliefs, values and understandings. Consequently, no common ground between these two types of research methods exists (Bryant, 2011). However, the advantage of mixed methods design is that a researcher does not need to hold any of these two philosophical positions prior to beginning the research, but in fact the researcher needs to be open-minded in order to find the best possible answer for his/her research question (Plowright, 2011). Thus, mixed methods design has been considered as a combination of quantitative and qualitative research approaches' elements such as data collection and/or analysis in the methodology of a study (Tashakkori & Teddlie, 1998). This

indicates that mixed methods design does not combine just the different methods but more importantly span viewpoints to inferences (Johnson, Onwuegbuzie, & Turner, 2007). However, this does not mean that researchers who utilise a mixed methods design ignore or hold confused philosophical assumptions. In contrast, they need to have a background of various paradigms according to the chosen methods as the purpose of this approach is to understand the complexity of the research question (Mertens, 2010). Consequently, for the purposes of the second phase of this thesis I employed the mixed methods design in a sequential form to investigate the effect of martial arts practice on global self-esteem in people with VI and to explore its mechanisms and strategies.

The final phase of the thesis (chapter 7) will involve an overall discussion of the three studies in line with the literature. Discussion will focus on the main factors that need to be considered when teaching people with VI. Although this thesis showed that martial arts practice may improve self-esteem in people with VI, two main components need to be existent for such improvement; social inclusion and teaching strategy that promote intellectual self improvement. Future research and practical implications, namely in the field of adapted physical activity and in the field of martial arts will also be provided. As previous research did not focus on examining the effect of exercise (any form of exercise) on self-esteem in people with VI, this study will hopefully encourage researchers to explore this relationship in different exercise settings. In addition, whether applied mechanisms and strategies that have been found in this thesis are appropriate for people with other impairments and/or sighted people may also be a potential idea for future research. Finally, the limitations of each of the three studies will be presented at the end of chapter 7.

However, the next chapter will start with a critical literature review to understand the main literature in the field of the thesis topic.

Chapter 2: Literature Review

Chapter overview

This chapter provides a critical discussion of research investigating the key aspects of VI, models of disability, self-esteem, EXSEM, and martial arts. I will begin this chapter by attempting to define what VI is from a medical, functional perspective as well as from my own. Following this, I will address models of disability focusing on the difference between medical and social models. I will then use these models and contextualize them within looking at physical activity and VI. Thus, I shall identify the barriers that limit people with VI from being physically active. This will introduce me to the definition of social inclusion and psychological consequences of exclusion such as self-esteem. What self-esteem means, its importance, construct and self-esteem measurements will be discussed. After that, I will present a hierarchy of self-esteem improvement due to exercise through the EXSEM since this model has been considered by sport psychologists as one of the best explanations for the self-esteem improvement. As it will be clear from the literature, there still appears to be a contradiction whether sport activities improve self-esteem and therefore a different type of exercise will be presented; martial arts and its difference compared to sports. At the end of the chapter, I will present the benefits of martial arts practice and its potential relationship to improve self-esteem in sighted people.

2.1 Aims

This chapter aims to provide a literature review about the main three components of this thesis; people with VI, self-esteem, and martial arts. These components will be divided into several aspects that need to be discussed in order to have an overall in-depth picture regarding people with VI, self-esteem, and martial arts. Investigating VI, these aspects include VI definition, physical activity level of people with VI, barriers they face when exercising, and self-esteem. Self-esteem aspects however, include its importance, constructs of self-esteem in addition to strategies and theories that have been suggested as necessary for the self-esteem improvement. Within these theories are exercise models and consequently there is a need to explore whether exercise improves self-esteem. When investigating martial arts, there is a need to address the difference between martial arts and other sport activities through evidence that may present the effect of martial arts on psychosocial domains, namely self-esteem. Therefore, this chapter will hopefully explain and justify a rationale for

particularly studying people with VI, the reason for investigating self-esteem, and utilising martial arts practice instead of the other physical activity types.

2.2 Visual Impairment (VI)

2.2.1 Introduction

VI has been considered as a low incidence impairment because the number of people, particularly children, who are VI is relatively small with respect to the overall population and compared to other types of impairments (Lieberman, et al., 2013; Sherrill, 2004). The prevalence rate of VI in Scotland has been suggested to be 2 per 1,000 live births (Keil, 2003). Although the types and degrees of VI are numerous and wide ranging (Corn & Lusk, 2010; Lieberman, 2011) VI in children and adults can be caused by either an optical (e.g. albinism, cataract, and retinitis pigmentosa) or through a brain disorder (e.g. cerebral visual impairment). According to the World Health Organization (WHO) 80% of VI can be avoided, prevented, or treated (WHO, 2011). Around one half of VI cases are correctable and around one fourth are preventable (Taylor, 2002). Nevertheless, these percentages cannot be generalized to children as approximately 75% of childhood VI and blindness is caused by non-preventable and non-correctable conditions (Cochrane, Marella, Keffe, & Lamoureux, 2011). While Cerebral Visual impairment (CVI) has been reported as the main cause of childhood VI in Scotland (Ravenscroft et al., 2008), cataract has been reported as the main cause of VI in adults in both developed and developing countries (Congdon et al., 2004; Murthy, Vashist, John, Pokharel, & Ellwein, 2010). However, the number of children with VI and blindness is relatively low in comparison to the number of older people with VI (Keffe, 2004).

It seems that because of the population of people with VI is diverse and because two people with an identical diagnosis can see differently (Spungin, 2002) various definitions of VI exist. For example, scholars such as Ravenscroft (2006), Colenbrander (2001), and the International Council of Ophthalmology (2002) do not agree what VI is. Below are some examples of definitions that have been used in the literature.

2.2.2 Definitions of VI

2.2.2.1 Medical definitions of VI

How well a person sees is measured by visual acuity which has been defined as

“The best direct vision that can be obtained with appropriate spectacle correction if necessary, with each eye separately, or with both eyes” (Ravenscroft, 2012, p. 198).

In clinical settings, visual acuity can be measured through different methods; for example Snellen Vision Chart (Figure 2.1 A), LogMAR Chart (Figure 2.1 B), or ETDRS letter score (Figure 2.1 C).

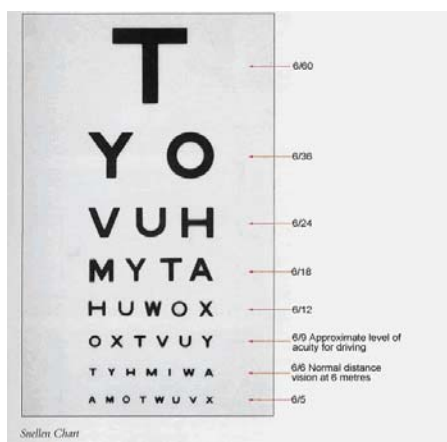


Figure 2.1 A: Snellen Chart

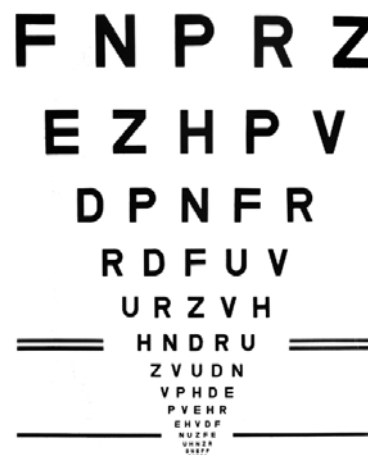


Figure 2.1 B: LogMAR Chart



Figure 2.1 C: ETDRS Chart

Although the Snellen chart and the ETDRS are the most common charts in the United States (US) (Kaiser, 2009), the Snellen chart is universally accepted and the most popular visual acuity measurement that has been used in 85% of surveys (Lopes, Zait-Saudry, Moshiri, Bressler, & Bressler, 2011). The score on the Snellen's chart is recorded by standing a 6 metres distance in front of the chart. If only the first letter of the Snellen chart can be identified then the Snellen score will be 6/60. A person who can see a line above the last line on a standard Snellen chart (figure 2.1.A) has visual acuity of 6/6. This means that, what someone with visual acuity of 6/60 sees from 6 metres distance, someone else whose visual acuity is 6/6 sees from 60 metres distance. However, for the purposes of the VI diagnosis, LogMAR is the visual acuity measurement followed in the United Kingdom (UK) and most of Europe. LogMAR is a notation of vision loss in which positive values indicate worse visual acuity, while negative LogMAR numbers indicate normal visual acuity, in which 0 LogMAR= 6/6 on the Snellen chart (Colenbrander, 2001; Kaiser, 2009). In order to keep a reader away from confusion for the purposes of this thesis I will continue using Snellen notation.

In addition to visual acuity, visual field is also important when we discuss the functional abilities of the eye. Simply, the visual field has been defined as a measure of the area from which a person is able to perceive visual signals, while his/her eyes are in a stationary position and looking straight ahead (Skillen, 2007).

Since over 40% of the brain is devoted to visual function it is not surprising that brain disorders (e.g. CVI) can affect vision (Dutton & Jacobson, 2001) and taking into account this criteria, Ravenscroft (2006) defined a person as significantly visually impaired if:

- A best corrected binocular visual acuity equal to or worse than 6/18 or;
- Any form of visual field loss or;
- Any eye movement disorder which affects visual function or;
- Any form of cognitive visual due to disorders of the parts of the brain subserving visual function.

However, to be registered as severely visually impaired in the UK a person's sight should fall into one of the following criteria:

- Visual acuity of 3/60 to 6/60 with a full field of vision or;
- Visual acuity of up to 6/24 with a moderate reduction of field of vision or with a central part of vision that is clouded or blurry or;
- Visual acuity of up to 6/18 if a large part of their field vision is missing or a lot of their peripheral vision is missing. (Keil, 2011)

All of the above definitions and registration standards describe VI from a medical perspective, knowing the visual acuity measure does not determine how a person functions (Colenbrander, 2010). A person is required to have higher levels of vision for optimal functioning and therefore, Dandona and Dandona (2006) consider the UK border of 3/60 (Keil, 2011) for determining blindness as inappropriate and should move to 6/60 as it is in Australia, USA, and Finland. Also, scholars in Australia (Taylor et al., 2005) and USA (Congdon, et al., 2004) consider the visual acuity of 6/18 as unhelpful since a person's daily activity can be impaired with acuity of 6/12; consequently a move to this new lower measurement has been suggested. To accept such a suggestion, I believe that we still need more evidence about the impact of low vision on a person's daily living activities before any change is made.

The above definitions seem to be vague when distinguishing between blindness, low vision, and VI which is essential as these terms are sometimes used in different ways (Lieberman, et al., 2013). People without functional (usable) vision can be considered as blind whereas individuals with low vision who have some functional vision which cannot be corrected to "normal" by using eyeglasses or lenses are considered VI (Bailey & Hall, 1990; Huebner, Prickett, Welch, & Joffe, 1995). VI is not associated only to the severity of loss, but also to the limitations in terms of activities of daily living (ADLs) (Lieberman, et al., 2013; WHO, 2001). ADLs has been identified as an ability to perform the basic tasks of everyday life, such as eating, bathing, dressing, toileting, and functional mobility (Blais, 2011; Wiener, Hanley, & Van-Nostrand, 1990). Consequently, in order to fully define what VI is I also need to define VI from a functional perspective.

2.2.2.2 Functional definitions of VI

In addition to medical definitions, functional definitions of VI may be more relevant to this thesis as it reflects the ability to perform daily tasks. How well a person is able to perform these tasks, given the vision loss has been described as functional vision (Colenbrander,

2001). We can look at the definition given by the International Council of Ophthalmology (2002) which has classified blindness, low vision, and visual impairment using a functional approach as follows:

- Blindness to be used only for total vision loss and for conditions where individuals have to rely predominantly on vision substitution skills.
- Low Vision to be used for lesser degrees of vision loss, where individuals can be helped significantly by vision enhancement aids and devices.
- Visual Impairment to be used when the condition of vision loss is characterized by a loss of visual functions (e.g. visual acuity or visual field) at the organ level.

According to Lieberman, Ponchillia, and Ponchillia (2013) any degree of vision loss that affects a person's ability to perform the ADLs should be considered as VI. However, not being able to perform ADLs may lead to more serious psychological consequences such as figure 2.2 shows. This can be related to the person's quality of life, such as creating and keeping friendships, self-confidence, fear of failure, coping skills, and asking for assistance (Colenbrander, 2010).

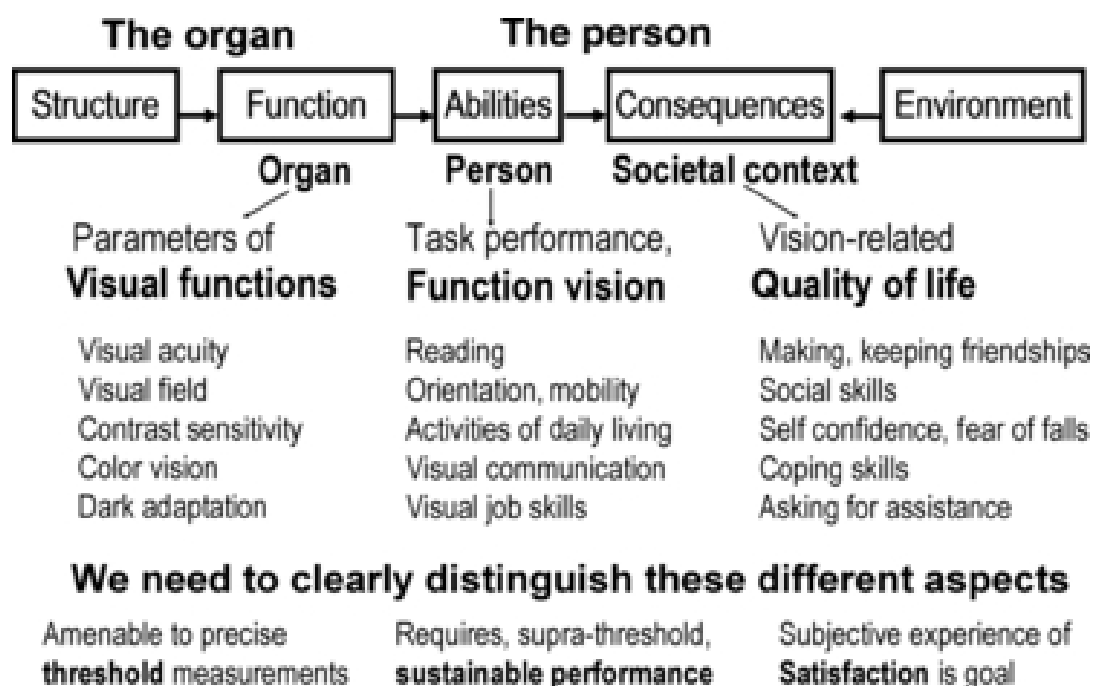


Figure.2.2: The aspects of visual function (left), the aspects of functional vision (centre), and the aspects of quality of life (right).

Taken from (Colenbrander, 2010)

With respect to these two VI definitions, I do believe that the medical definition does not take into account individual differences and abilities whereas the functional definition reflects an ignorance of the medical diagnosis. I would therefore like to illustrate my understanding of VI as follows.

2.2.2.3 Definition of VI from my perspective

With respect to the medical and functional definitions of VI, I think that an expanded combination of these two models may be necessary to describe what VI means. The definition however will take into account the fact that people with the same visual diagnosis may function differently (Lieberman, et al., 2013; Spungin, 2002). My understanding of a person that has VI is a person that has been certified by an ophthalmologist as having impaired vision, and is also one where the VI affects the performance and function of ADLs perceived by the individual. For example, functional mobility as one of the ADLs (Blais, 2011) could be perceived by a person affected due to VI but not by another one. Consequently, the first person would be considered as VI whereas the second one would not. Also, a person with a Snellen score of 6/18 may function and perceive his impairment worse than a person with a Snellen score of 6/24. Perception of impairment in this context means psychosocial health that has been influenced due to the impaired vision. This means that a person who has been medically diagnosed as having impaired vision that affects his/her ADLs and/or mental health is, from my perspective, a person who should be considered a person with VI. This definition includes individuals while wearing glasses or contact lenses and is not dependent upon either an optical or a brain disorder – it covers both. Therefore, a person that has affected mental health and/or ADLs because of impaired vision is a person with VI.

However, VI classification in the context of sports seems to be largely related to the medical definition of VI rather than a functional definition.

2.2.3 VI in the sport settings

Although blindness and visual impairment are used as synonyms in the sport world (Sherrill, 2004), sport classifications of VI are considered important in the use of guides since not all athletes need the same level of assistance (Lieberman, 2011). Consequently, the International Blind Sports Association (IBSA) divide athletes into three groups (B1, B2, and B3) according to their visual acuity and visual field (table 2.1) (Sherrill, 2004).

Table 2.1. Sport classification for International Blind Sports Association (IBSA).

Classification	Description
B1	No light perception in either eye up to light perception and inability to recognize the shape of hand in any direction and at any distance
B2	Ability to recognize the shape of a hand up to a visual acuity of 2/60 and/or a limitation of field vision of 5°
B3	From a visual acuity above 2/60 up to 6/60 and/or a visual field of more than 5° and less than 20°
<i>Note:</i> Taken from Sherrill (2004)	

The World Karate Federation (WKF) recognizes the above mentioned classification but may add extra points in kata (solo performance) to those from the B1 and B2 groups (Weigert & Nagl, 2012). The sport classification however mainly depends on the medical definition of VI for the purposes of the competitions which are not the aim of karate, as will be critically discussed in section 2.6.2. By contrast, judo competitions for people with VI begin from contact, and their classification has developed within the last few years. Instead of competing based on the sight difference, classification has been established according to their weight only and not their sight impairment. In other words, judoka from all visual classification B1, B2, and B3 compete together (IBSA, 2009) but the minimum criteria for competing in Paralympics needs to be within “B3” category. The reason for this classification is that judoka with VI begin from the same starting sparring position and no one is advantaged. It seems that although both of the two organizations (IBSA & WKF) accept the medical definition of VI and sport classification of VI, they use these definitions differently according to the abilities of judoka and karateka respectively. This disagreement perhaps has roots in the perception of disability among people working in the field and their experience. Judo has been practiced among people with VI for decades taking into account that was introduced in Seoul 1988 Paralympics (International Paralympic Committee, 2014) whereas the 1st

international karate championships started in 2014 (WKF, 2014). It seems that the perception of people without impairments about the abilities of people with impairments is fundamental to determine not only sport classification but wider relationships. The origin of these perceptions is based on the models of disability, namely medical and social models.

2.3 Models of disability

Although there are other models of disability such as charity models and citizenship models (Edmonds, 2005), the two most popular models of disability today are known as medical and social models. Over the past 50 years, these two models of disability have emerged and developed widely (LoBianco & Sheppard-Jones, 2007) such that nowadays we can say most definitions of disability falls mainly within one of the two categories; medical or social (Houlihan, 2003; Thomas & Smith, 2009). The main controversy between these two models is disagreement of what actually leads to the difficulties of people with impairments.

2.3.1 Disability in the medical model

The medical model perceives disability as an impairment that is owned by an individual and which results in a loss or limitations of function or some other defect (Thomas & Smith, 2009). Within the medical model, disability includes people with mobility, visual or hearing impairment, and those who cannot perform ADLs (Oliver, 1996). The most important definitions of not only disability, but also impairment and ‘handicap’ were introduced in 1980 by the WHO, and these definitions came to be widely used in welfare policy and professional practice (Thomas & Smith, 2009). The following are definitions of impairment, disability, and handicap identified by International Classification of Impairments, Disabilities and Handicaps (ICIDH) published by WHO (1980):

- Impairment: Any loss or abnormality of psychological, physiological, or anatomical structure or function.
- Disability: Any restriction or lack of ability (resulting from impairment) to perform an activity in the manner or within the range considered normal for a human being.
- Handicap: A disadvantage for a given individual, resulting from an impairment or disability that limits or prevents the fulfilment of a role (depending on age, gender, social, and cultural factors) for that individual.

Recently, another model that has taken over from the WHO is the International Classification of Functioning model (ICF). According to Blais (2011), the ICF consists of 3 fundamental components:

- Impairments: a significant deviation or loss that causes problems in body functioning.
- Activity: execution of a task by a person.
- Participation: involvement in a life situation

Interestingly, disability according to the ICF has been defined as an activity limitation or participation restriction of a person with impairment (WHO, 2001). This definition of disability seems to be interesting since this definition of disability does not clarify whether these restrictions are caused by the impairment or by external social circumstances which could then be addressed.

Within the medical model, disability is considered to be a consequence of body impairment (parts of the body or whole body) which may affect ADLs. If the impairment which is independent of the wider sociocultural environment (Brittain, 2004) was treated, the person would not be disabled. Consequently it seems that a person with disability is considered as ill or unhealthy (Donoghue, 2003).

In addition, people with impairments may support the medical model considering themselves as disabled and/or ill such as this woman who has hand amputation expressed:

“I really wish I were healthy and had my left hand. Nobody knows how much I'd like my life to be better, like those who are strong and healthy. Everybody enjoys living happily, but not me. My life is different.” (Mason, 1990, p. 28).

Nevertheless, the medical model has been widely criticized for several reasons. First, within this model the focus is exclusively on the personal restrictions of people with impairments whereas personal and social needs are ignored and impairment is presented as the sole cause of disability (Thomas & Smith, 2009). The term that is used within the medical model ‘people with disabilities’ indicates that people are disabled as a result of their impairment (Oliver, 1996) and labels people by their impairment (Morris, 2001). Thus, Oliver (1996) preferred to identify the medical model as medicalization.

“There is no such thing as the medical model of disability, there is instead, an individual model of disability of which medicalization is one significant component.” (Oliver, 1996, p. 31).

He further claimed that a difference between disability and illness is clear although doctors try to treat both disability and illness. In addition, as a consequence of the medical model of disability, people with impairments may face social challenges and restrictions (Barnes & Mercer, 2003) and therefore disability becomes a social state rather than a medical condition (Oliver, 1990). As a result of all these criticisms towards the medical model, the social model has replaced the medical model of disability (Lieberman, et al., 2013).

2.3.2 Disability in the social model

The social model of disability was first introduced in 1980 (Sherrill, 2004) and has been developed later on by Oliver in 1983 (Oliver, 2004). It appeared as a result of a political movement led by people with disabilities to destabilize and deconstruct the medical model of disability (Edmonds, 2005). The main idea of the social model is that disability is a social product that cannot be treated solely by medicine (Oliver, 1990). The social product refers to structural and personal barriers created by society suggesting that people are disabled by society and not by their bodies. Separating impairment (functional limitations of body or minds) from disability (barriers of unequal access and negative attitudes) is the cornerstone of the social model (Morris, 2001). Although the social model does not deny that impairment is closely related to the physical body, the responsibility for the disability lies in the society and not in an individual (Oliver, 1996). Consequently, the following definitions of impairment and disability appear within the context of the social model separating impairment and disability:

Impairment is “lacking part of or all of a limb, or having a defective limb, organ or mechanism of the body.” (Oliver, 1996, p. 22)

“Disability is disadvantage or restriction of activity caused by a contemporary social organization which takes no or little account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities.” (Oliver, 1996, p. 22)

In other words, society is organized to exclude people with impairment and therefore they become disabled (European Disability Forum & International Disability and Development Consortium, 2004; Morris, 2001). This means that society disables people with impairments by limiting their worth in society which creates an additional burden on their own impairment and isolates people with impairments from the rest of society (Houlihan, 2003) by not providing equal opportunities to everybody. How society may disable people with

impairments appears through experiences of people with impairments. For example, a person with cerebral palsy said:

“You can’t understand what it’s like. I go into a restaurant with my friends, and does the waitress ask me what I want to eat? No, she asks the guy sitting next to me, what does your friend want to eat?” as though I can’t talk or hear or something. It’s like that everywhere I go. People can’t seem to see beyond my cerebral palsy. They hardly ever look me in the eye and say hello. It’s like they don’t think we have anything in common, I’m not worth bothering with.” (Sherrill, 2004, p. 28).

In his study, Brittain (2004) interviewed Paralympic athletes (n = 12) with VI and physical impairments. The participants noted that their friends and family had changed their perception about abilities once they had acquired an impairment. The different treatments were basically observed through overprotection (even when the impairment happened in their twenties), losing friends, and lack of knowledge how to interact with them. Thus, Brittain’s (2004) results seem to support Fishbein’s (1996) argument that it is difficult to achieve social acceptance, namely peer acceptance, when people are perceived differently. Being treated differently may have serious psychosocial consequences on a person and this will be expanded on later on in the section 2.4.2.

Since advocates of the two models have their arguments and there are examples of people with impairments who support both models, a need for a new or balanced approach is necessary.

2.3.3 Does a need for the balance between the two models exist?

Many people with impairments do not want to see themselves as disabled, either in the term of a medical or a social model (Shakespeare & Watson, 2001). The purpose of Lobianco and Sheppard-Jones’s (2007) study was to investigate whether medical conditions or social factors influence individuals’ perception of disability. They recruited non-institutionalized respondents (n = 25,805) aged 18 years or older and asked whether or not the respondents perceived themselves as having a disability, and whether or not they believed that others perceived them as having a disability. Results of the study showed that 36.8% of respondents perceived themselves to have a disability versus 31.5% who believed others perceived their disability. However, 24.1% identified themselves without any activity limitations. The researchers concluded that although the medical model is associated with disability, social factors have significant independent effects on one’s perception of having a disability. The major finding, however, was the extent to which individuals were engaged with their

community and this shaped the perceptions that one held about himself/herself regarding disability.

Consequently, it appears that the two models of disability are equally important. I agree with Shakespeare (2006) that a balanced approach is needed, giving an appropriate weight to the different aspects of disability. Some people with impairments think that they are disabled by their bodies, while others argue that they are disabled more by environmental and economic barriers than by their impairments. Also, individuals with impairments may perceive themselves as disabled by both; their bodies and environmental factors or they may not feeling disabled at all. Impairment and disability describe different places on a continuum, or different aspects of a single experience. As there is a complex mix of biological, psychological, cultural, and socio- political factors, it is difficult to determine where the border between disability ends and impairment starts (Shakespeare & Watson, 2001). However, the advocates of the two models agree that people have impairment. Therefore, and importantly without labelling anyone, the term ‘people with impairments’ would be appropriate for this thesis since I believe that disability should be viewed neither as purely medical nor as purely social (Thomas, 1999), but rather as an individual perception of disability.

However, in the context of physical activity people with impairments may face social barriers and personal barriers that disable them from being physically active. Literature about this topic has been established and will be presented next.

2.3.4 Disability models and physical activity

People with impairments face either personal or social challenges which limit their intensive participation in physical activity (school activities, sport clubs, exercises). To explore barriers and facilitators associated with participation in physical activity programmes among people with physical impairment, Rimmer, Riley, Wang, Rauworth, and Jurkowski (2004) conducted focus group interviews with persons with impairments and professionals working in the field of disability in the USA. The following barriers were identified to be the main reasons for not being physically active enough: barriers related to built and natural environment, economic issues, emotional and psychological barriers, equipment barriers, information-related barriers, professional knowledge, perceptions and attitudes of non-disabled persons. Unfortunately, such negative attitudes are often held by coaches, teachers and instructors who are not willing to adapt their teaching and communication styles (Nixon Ii, 2007). Furthermore, Buffart,

Westendor, van den Berg-Emons, Stam, and Roebroek (2009) conducted a focus group interview with young adults (n = 16) with physical impairment in the Netherlands. They found that barriers related to attitude and motivation, lack of energy, limited physical facilities, and lack of information were the main barriers for their limited physical activity. These barriers are not specific for people with physical impairment but may be also applied in those with VI.

2.3.4.1 Disability models and physical activity in children and adolescents with VI

It was found that children and adolescents with VI are less involved in physical activity than able-bodied peers (Sport England, 2001). Also, children with VI younger than 16 years are less involved in PE classes than the curriculum standard and even less than young people with other impairments (except physical impairment) (Atkinson & Black, 2006), and they are most limited from physical activity participation (Longmuir & Bar-Or, 2000). Although 38% of all young surveyed people with impairments perceived health condition as a main barrier to be more physically active, 19% of children with impairments aged 6-16 years did not take part in any physical activity because of discrimination by the general public (Sport England, 2001). In addition, Brittain (2004) found that from the perspective of Paralympic athletes with impairments, a perception that people without impairments possess about their peers with impairments plays a key role in the physical activity restriction of people with impairments.

Furthermore, according to my understanding of the literature it seems that more social than medical conditions limit people with VI to fully participate and compete in physical activities. For example, Lieberman, Houston-Wilson, and Kozub (2002) aimed to examine the barriers perceived by PE teachers when including children with VI in general PE classes. The authors recruited teachers (n = 148) with teaching experience up to 34 years who filled out a questionnaire developed by the researchers. The results showed that a lack of professional preparation was the most prevalent barrier for including children with VI in PE classes. Academic preparation is particularly important since it has been identified as the best predictor of teachers' attitudes towards students with impairments (Rizzo & Kirkendall, 1995). This indicates that unless teachers have an appropriate academic preparation they may have no positive attitudes towards students with VI which may limit the inclusion of these students. Although Block (2007) claims that teachers/coaches play the most significant role in producing successful inclusive physical/exercise sessions for individuals with impairments,

practical examples from the field show that PE teachers are one of the main barriers for being physically active. A 9 year old boy with impairment said:

“Sometime I feel as if the [PE] teacher likes the other students better than me because I am not good at PE.” (Atkinson & Black, 2006, p. 22).

Lieberman et al. (2002) also found a lack of equipment, non-appropriate curriculum, and time in schedule as children’s with VI restrictions in PE. Other barriers such as a lack of communication, non-qualified teachers, teachers’ overprotection or fear, limited expectations, medical excuses, parental overprotection, and teacher apathy were chosen by less than half the participants.

In Stuart, Lieberman, and Hand’s (2006) study, the authors aimed to examine physical activity values perceived by children with VI and their parents and to identify barriers perceived by children with VI and their parents for physical activity participation. Children from mainstream schools (n = 28) aged 10-12 years and their parents participated in the study. The barriers inventory used an open-ended format consisting of several leading questions such as “Sometimes things happen that stop kids from being physically active. I’d like to hear about those things that stop you from being physically active”. Children with severe VI and their parents reported that physical activity was less important to them compared to those with better sight and their parents. It was also identified that the main barriers for physical activity participation of children with VI were a fear of being made fun of, no one to do activity with, and no activities to do. Barriers perceived by parents were fear that their children would get hurt during physical activity, the belief that their children did not have the ability to be physically active, and the lack of opportunity to be physically active. Recently, Spencer-Valiere and Watkinson (2010) found that children with impairments consider inclusion as feeling like a legitimate participant and having friends during the PE classes. This finding also seems to support previous outcomes that feeling included or excluded largely depends on students’ views and their own perception about interacting with their peers (Blinde & McCallister, 1998; Goodwin & Watkinson, 2000; Place & Hodge, 2001).

2.3.4.2 Disability models and physical activity in adults with VI

Results from the previous section show that children with VI are less physically active than their sighted peers. In addition, evidence suggests that young adults with VI also need to be

more physically active (Kakiyama, et al., 1999; Willis, et al., 2012). Sherrill, Rainbolt, and Ervin (1984) found that adults with VI who reported little involvement in PE classes during childhood/adolescence also reported a lack of encouragement to develop physical/recreational activities. More recently, Holbrook, Caputo, Perry, Fuller, and Morgan (2009) studied men and women with mild VI ($n = 8$), moderate VI ($n = 9$), and severe VI ($n = 8$). Physical activity levels were quantified with a Step Activity Monitor for a 7-day period. In their study, participants' averaged 8,028 steps a day, which was below the physical activity recommendation of approximately 10,000 steps per day (Tudor-Locke & Bassett, 2004). Furthermore, the authors highlighted that this volume of physical activity (8,028 steps a day) was similar to the values reported among older adults ($M = 79$ years) with functional limitations (Cavanaugh, Coleman, Gaines, Laing, & Morey, 2007). In addition, Willis, Jefferys, Vitale, and Ramulu (2012) explored how accelerometer-measured physical activity was affected by VI and uncorrected refractive error. All participants ($n = 2852$) were older than 20 years and divided into three groups: VI, uncorrected refractive error, and normal sight. The results showed that adults from the first group (those with VI) scored significantly less steps per day and were significantly less engaged in moderate or vigorous physical activity ($p \leq .01$).

According to the survey conducted by English Federation of Disability Sport (2013) with about 90 people with VI aged over 14 years, 64% of the participants considered their impairment as the main reason for not being active whereas 43% stated that they needed additional support. Although the concepts of "need support" and "lack of encouragement to develop physical/recreational activities" are not clear, it seems that adults with VI still count social exclusion as a reason when deciding not to engage in physical activity. According to Kew (1997) a lack of previous physical activity opportunity and experience resulted in a small number of people with impairments exercise. However, people with impairments do not want to exercise because a fear of failure which has been originally rooted in their own self-perception as a result from previous social negative experiences and exclusion (Brittain, 2004). In her study, Bredahl (2013) interviewed participants with physical and visual impairments aged 18-65 years. She found a significant number (13 out of 17) of negative experiences originating from the PE centred in the following three domains: a) experiences of not being included; b) experiences of failing; and c) experiences of not being listened to.

Also, Rankin (2012) found that people with impairments perceive themselves and beliefs of others as the main barrier of being physically active. Interestingly, personal perceptions were constructed on the previous experience in which others were involved, such as being made fun of which impacted their confidence and self-esteem. Therefore, I would explore causes of perceived barriers rather than barriers themselves in order to categorize whether the barriers are internal or external. If people without impairments are laughing at people with impairments when exercising, we cannot blame people with impairments for being physically passive or having low self-esteem and low self-confidence. Instead, people with impairments need to be respected, included and encouraged as a minimum for getting the benefits that exercise may offer.

2.3.5 Summary of the models of disability

Advocates of the medical model of disability argue that people with impairments are disabled because of their own bodies, however, in the social model disability is viewed as a social construct regardless of the impairments. People with VI have different perceptions about what disables them; their bodies, society, both, or nothing. However, studies show that a major number of the reasons among children, adolescents, and adults with VI that limit or restrict them from being physically active are socially oriented. Only two studies (English Federation of Disability Sport, 2013; Sport England, 2001) identified that individuals with VI do not participate in physical activities due to their VI, whereas social barriers such as discrimination, lack of professional preparation, lack of equipment, overprotection, a fear of being made fun of, no one to do activity with were identified in the other studies (Bredahl, 2013; English Federation of Disability Sport, 2013; Sport England, 2001; Stuart, et al., 2006). With respect to all these studies and without ignoring that people with VI may perceive that they have limited opportunity for physical activity due to their VI, social barriers are still one of the main reasons for not being physically active. Due to some of these social barriers people with VI may feel excluded, although the literature suggests that inclusion appears to be a significantly important topic for people with VI, namely in the context of physical activity and exercise. From the last two sections of this chapter, it seems that not being included, treated equally, or respected in physical activity limits people with VI from participating in these activities and therefore in the next section I shall address the meaning and the importance of inclusion, namely social inclusion for people with VI.

2.4 Inclusion of people with VI in the physical activity settings

2.4.1 What does inclusion mean?

According to Sherrill (2004) inclusion is based on the principle of valuing diversity, feeling of acceptance, belonging, and being supported. Although inclusion may be promoted through different forms such as social or physical, these two types of inclusion are different (Sherrill & Williams, 1996). Being physically together with sighted persons does not necessarily mean that individuals with VI are included (Nixon, 1989). Being physically in the same place does mean integration and does not guarantee that individuals with VI would not be excluded and stigmatized. For example, a participant from the George and Duquette (2006) study was integrated but not included in all classes. Supporting this finding, Place and Hodge (2001) observed social interaction between three students with impairments and their peers without impairments during PE classes. The authors found that the three students had very low interactions with their peers at 86.4%, 97.5%, and 94.6% respectively. Furthermore, young people with impairments reported that despite being included they felt a loss of independence (Goodwin & Peers, 2012). Consequently, inclusion is important for people with impairments but needs to be seen in parallel to feeling valued, respected, loved, and dependent.

2.4.2 Potential psychosocial consequences of being excluded

It was found that children with impairments who attended mainstream PE classes reported that they were bullied because of their impairment (Coates & Vickerman, 2010). In Hutzler, Fliese, Chacham, and Van den Auweele's (2002) study most of the participants reported that they were teased and bullied by their peers. Recently, it has been found that children with impairments (physical, visual, and hearing impairments) experience bullying (Bourke & Burgman, 2010). Moreover, Horwood, Waylen, Herrick, Williams, and Wolke (2005) found that people who wear glasses are more likely to be bullied at 35%-37% compared to those who do not. Similarly, Piquart and Pfeiffer (2011) found that adolescents with VI reported higher levels of victimization than students without VI. Consequently, it is not surprising that being stigmatized will lead to social exclusion (West, 1984) since people with impairments would try to avoid discrimination.

By contrast, students need to feel accepted, loved, and appreciated for both what they can and cannot do (Sherrill, 2004). Social inclusion therefore has been described as a frequent pleasant interaction between the students who contribute to feelings of acceptance, respect

and value (Spencer-Cavaliere & Watkinson, 2010) without stigmatizing and potentially disabling (Nixon, 1989). Importantly, the love and belonging needs involve both giving and receiving affection (Maslow, 1987) which is a precondition for achieving a satisfied level of self-esteem (figure 2.3).

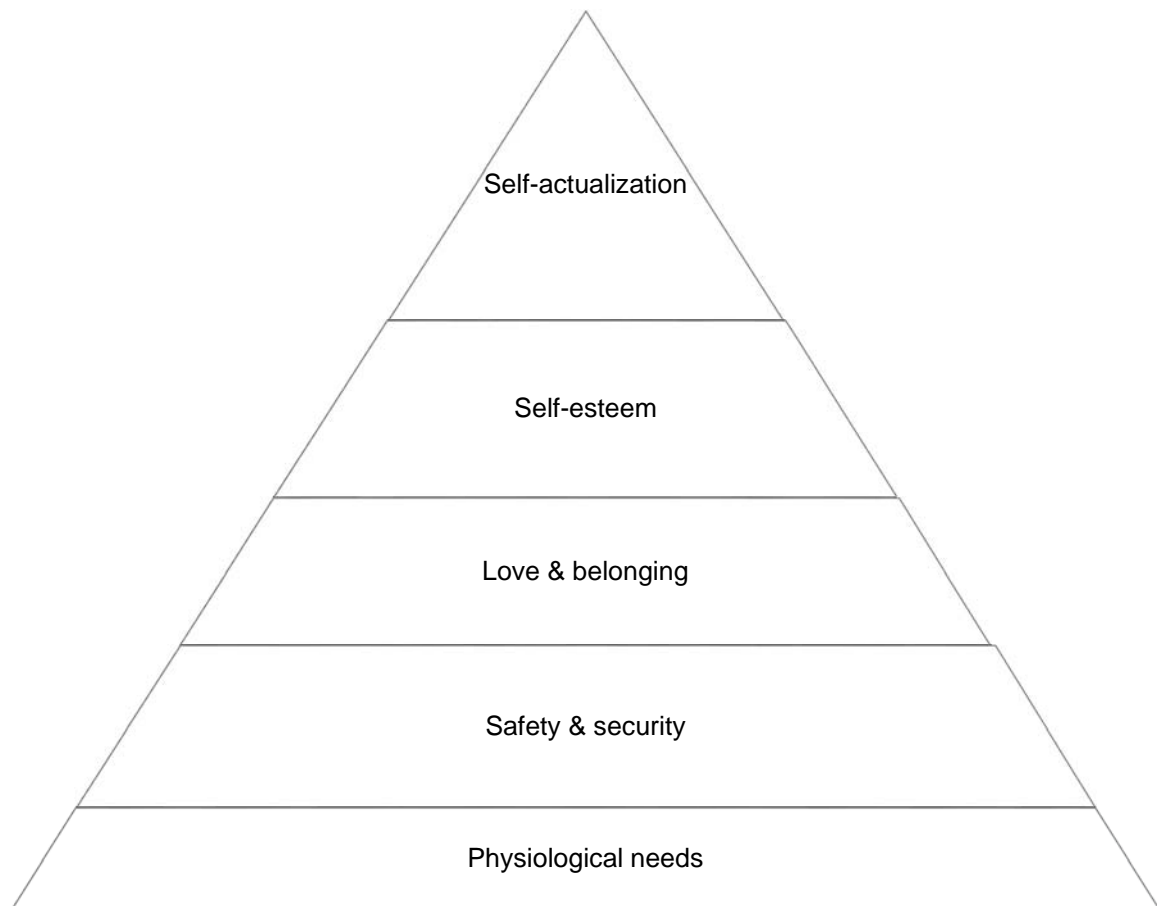


Figure 2.3: Maslow's hierarchy of human needs

According to Maslow's hierarchical theory, unless people feel accepted and loved they will not feel a satisfaction of the self-esteem needs, self-confidence, being worth, capability, adequacy, and being useful in the world.

In agreement with Maslow's hierarchical theory of self-actualization, multidimensional self-esteem scales contain a social domain across childhood, adolescence, and adulthood which reflects people's need for feeling that they belong through social satisfaction, and ability and desire to meet new people and feeling accepted (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986).

Since a fear of being made fun of and a fear of getting hurt have been identified as among the main social barriers that restrict participation of individuals with VI in physical activities, it also may negatively reflect on the self-esteem satisfaction. This is particularly important when taking into account a study in which people felt unaccepted and as a result affected their self-esteem (Wolman & Basco, 1994). The authors recruited participants ($n = 107$) aged 12-22 years for their study and aimed to identify demographic, personal, familiar, attitudinal, and social factors that have beneficial or detrimental influences on the self-esteem of adolescents with spina bifida. A structured face-to-face interview, including 67 forced choice and open-ended questions was adapted for the study. Self-esteem was measured using a Rosenberg Self-Esteem Inventory (Rosenberg, 1965). The findings of the study showed that adolescents who had had problems at school such as teasing and rejection had also lower self-esteem. Adolescents who felt that they were considered disabled by others also had lower self-esteem.

However, self-esteem has been considered as a wider concept than the one that was proposed by Maslow (1987). As a multidimensional construct, different domains may impact global self-esteem and not only social domain. Self-esteem, is one of the most important concepts of wellbeing (Biddle & Mutrie, 2008) and therefore the definition of self-esteem and its importance needs to be examined.

2.5 Self-esteem

2.5.1 Definition of self-esteem

There is a complexity in definitions of self-esteem. Both 'self-concept' and 'self-esteem' have been used to define self-esteem itself although each term appears to have its own definition (Pavey, 2009). The importance of identifying differences among these two terms lies in the researcher's ability to identify very clearly which term is accurately described and thus used in their study. To avoid synonymously using terms there is a necessity to carefully differentiate among these terms and to know how the concept of each term is related to another (Berger, Pargman, & Weinberg, 2002). One attempt at defining these terms was made by Fox (1997) when he distinguished between self-concept and self-esteem. For Fox, self-concept means the individual as known to the individual. This is a self-description profile based on the multitude of rules and attributes that make up our self. This means that the statements such as 'Who am I?' 'I am a teacher' or 'I like sports' do not demonstrate

evaluation of the self but only describe the individual (Harter, 2012). It is a multidimensional model which contains more specific perceptions across various domains than a singular domain such as academic, social, and physical (Shapiro & Martin, 2010b).

By contrast, self-esteem is a global construct that provides an overall statement of the degree to which an individual perceives himself or herself to be an 'OK' person, dependent on whatever criteria that individual uses to determine 'OK' (Fox, 1997). According to Sherrill (2004) self-esteem is positive self-regard, self-worth, or overall good feelings about self which is the best indicator of the well-being of the self-system and an overall measure of success of the self-system. Self-esteem therefore answers the question 'How do I feel about myself?' (Lindwall & Asci, 2014).

To clarify, self-concept has been considered as the conscious perceptions a person has of his/her self and the cognitive component of the self-system, while self-esteem has been described as the evaluation of the person's perception of self-concept (Stanwyck, 1983). Because of the clear difference between the two concepts, the terms self-concept and self-esteem used in this thesis will be according to the above definitions.

2.5.2 The importance of self-esteem

Global self-esteem has been identified in the literature as one of the most frequently reported psychosocial measurements due to its importance (Trzesniewski, Donnellan, & Robins, 2003). Self-esteem has also been identified as one of the main factors for human functioning and performance that is related to general well-being and mental health (Buckworth, Dishman, O'Connor, & Tomporowski, 2013; Lindwall & Asci, 2014). Furthermore, self-esteem is a crucial component in child's growth and development (King, 1997) since high self-esteem is positively associated with personal, mental and social health among children and adolescents (Torres, Fernandez, & Mceira, 1995). High self-esteem is also linked to increased academic achievement, improved health, productive behaviour (Daglas-Pelish, 2006), happiness and life satisfaction (Lindwall & Asci, 2014). Conversely, low self-esteem may be a precipitating factor of unhealthy behaviour (Hayes & Fors, 1990). Low self-esteem has also been identified as a possible risk factor for depression (Peden, Hall, Rayens, & Beebe, 2000) and can result in the development of behavioural disorders (Egan & Perry, 1998; Mann, Hosman, Schaalma, & deVries, 2004). Although self-esteem is related to a wide range of life conditions; teachers, administrators, and parents should be cautious and not

incorrectly view low self-esteem as the cause of all negative behaviours and high self-esteem as the cause of all positive behaviours (Manning, Bear, & Minke, 2006).

2.5.3 Constructs of self-esteem

Similar to Harter's (2012) multidimensional concept of the self, self-esteem is considered as an evaluative component of each of these self-components (Byrne, 1996). For instance, a perception of being a student or a person in society is evaluated academically and socially respectively. This means that a person can evaluate himself/herself highly in one domain and low in others (Lindwall & Asci, 2014). Global self-esteem however is a result of evaluations across these life areas. This model of multidimensional hierarchical construct of self-esteem has been proposed first in 1976 by Shavelson, Hubner, and Stanton (1976) and has been widely accepted and supported later on in the literature (Boyd & Hrycaiko, 1997; Marsh, 1990; Marsh, Craven, & Martin, 2006; Sabiston, Whitehead, & Eklund, 2012).

Two studies designed by Vallerand, Pelletier, and Gange (1991) aimed to investigate whether self-esteem is a unidimensional or multidimensional construct. In the first study, their aim was to examine if students with better academic performance and higher IQ score (talented students) differ from those with lower academic and IQ achievements (regular students) in actual school competence and in general self-esteem. Students ($n = 173$) with a mean age of 10.12 years participated in the study. They used the Perceived Competence Scale for Children (PCS) designed by Harter (1982). This scale is made up of 4 subscales: a global self-esteem subscale, the cognitive (school), physical (sports/physical activity), and a social subscale. Each subscale consists of 7 items. The PCS showed high reliability and validity measures. The results showed that talented students had significant differences only in the cognitive (school) competence subscale without differences in the general self-esteem subscale. In the other study, following the same methodology and measurements, Vallerand et al. (1991) aimed to compare unidimensional with multidimensional views of self-esteem in the sports domain. Swimmers ($n = 82$) aged 13.32 years participated in the study. Swimmers who had achieved the national standards were qualified as talented and those who were members of swimming clubs and had not reached national standards were qualified as regular swimmers. The results showed that talented swimmers had better results only on the physical and swimming subscales whereas no significant differences were found in the global self-esteem measure.

As these domain-specific differences were obtained in two different life domains (education and sports), these findings appear to support a multidimensional approach of self-esteem. This means that different types of self-esteem exist within one person across different life stages (Marsh, et al., 2006). It has been claimed that children's global self-esteem can be influenced by 5 domains (Harter, 1985) whereas 8 domains impact adolescents' global self-esteem (Harter, 1988). Global self-esteem of college students and adults may be affected by 12 and 11 domains respectively (Messer & Harter, 1986; Neemann & Harter, 1986).

Following on from the Vallerand et al.'s (1991) findings, feeling competent in one domain does not seem to entail generalization to the other domains or to global self-esteem. It may be possible for individuals to change in a certain domain without affecting global self-esteem. Indeed, global self-esteem is more stable compared to its domains (Shavelson, et al., 1976). Only domains of high personal importance exert a strong effect on global self-esteem while evaluations in the domains of low personal importance do not (Brown & Marshall, 2006; Harter, 1999).

2.5.4 How to measure self-esteem?

Individuals from the age of 8 years and older can distinguish among different domains of their self-esteem, and value the importance of each domain (Harter, 1982). Consequently, taking into account self-esteem as a multidimensional hierarchical structure (Bracken, Bunch, Keith, & Keith, 2000; Pavey, 2009), self-esteem measurements that were developed by Harter's contribution include a general measure of self-esteem in addition to separate measures of the individual's perceived competence in different life domains and its importance ratings for children (Harter, 1985), adolescents (Harter, 1988), college students (Neemann & Harter, 1986), and adults (Messer & Harter, 1986). Life domains that influence global self-esteem according to these scales vary according to age despite the presence of social, athletic, physical, and intellectual domains across all life stages.

Harter's (1978) theory suggests the people are motivated where their competence can be demonstrated and particularly in the area where they feel a perception of personal control (Biddle & Mutrie, 2008). In other words, those who perceive themselves as a high component in physical activity would be more likely to participate in these activities. Following this theory, the physical self-perception scale (Fox & Corbin, 1989) was developed in line with Harter's self-perception scales (Harter, 1985, 1988; Messer & Harter, 1986; Neemann &

Harter, 1986) and similarly contains a measure of importance (Perceived Importance Profile) (Fox, 1990). Also, Buckworth, Dishman, O'Connor, and Tomporowski (2013) supported Harter's and Fox's arguments when a discrepancy between competence and importance exists (competence < importance) self-esteem becomes threatened.

Some other researchers (Piers, Harris, & Herzberg, 2002; Shavelson, et al., 1976) however, developed self-esteem scales across different life domains but did not measure the importance of every domain. From my literature review, I found that studies from 1991 support the position that self-esteem is a multidimensional construct although it can be measured either as a unidimensional or multidimensional concept (Marsh, et al., 2006). Consequently, for the purposes of measuring global self-esteem we can use scales that were developed only for that purpose, such as Rosenberg's Self-Esteem Inventory (Rosenberg, 1965). However, these scales will not provide us the reasons for potential low self-esteem or how to improve self-esteem. Therefore, to improve global self-esteem we need to identify domains that are perceived to be low by a person but at the same time considered as important (Harter, 1999).

However, to date only one study (Shapiro, et al., 2008) investigated the importance of self-esteem domain on people (children and adolescents) with VI. In addition, most of the previous research focused on measuring self-esteem of adolescents with VI and only one study (Papadopoulos, et al., 2013), to my knowledge, explored self-esteem of young adults with VI.

2.5.5 Self-esteem of people with VI

2.5.5.1 Self-esteem of children and adolescents with VI

In the literature of self-esteem and individuals with VI there appears to be a contradiction (Datta, 2014). According to Obiakor and Stile (1990) there is little evidence which proves that children with VI have lower self-esteem than sighted peers regardless of their age. However, six studies have used different measurements of self-esteem to investigate self-esteem levels of young people with VI. Rosenberg Self-Esteem Inventory was used by (Huurre, 2000; Kef, 2002), Coopersmith's Self-Esteem Inventory was used by (Griffin-Shirley & Nes, 2005), and Harter Self-Perception Profile by (Shapiro, et al., 2008; Sherrill, Hinson, Gench, Kennedy, & Low, 1990). All of these six studies found that participants with VI had similar levels of self-esteem as their sighted peers. Pierce and Wardle (1996) claimed

that children with VI may have lower self-esteem as children with VI are often excluded, isolated, and have limited contact with their peers (Ulla & Nordell, 2001; Wagner, 2004).

However, only Shapiro, Moffett, Lieberman, and Dummer (2008) examined global self-esteem and different self-esteem domains (as used in the Harter Self Perception Profile for Children). Children in their study did not value three (athletic, social, or physical competence) out of the five domains as important factors in their lives. The other two domains (behavioural conduct and scholastic competence) were not included in this study. In addition, the authors found no significant differences in global self-esteem between children with VI and those normally sighted. Although most of the literature focused on children and adolescents with VI, to my knowledge only one study aimed to investigate self-esteem level of young adults with VI.

2.5.5.2 Self-esteem of young adults with VI

As it can be noticed from above, most of the studies focused on children and adolescents with VI whereas previous literature paid little attention to adults, namely young adults. Young-adult is a complex term since there is no clear definition of an age group that falls under this definition. According to Geiger and Castellino (2011) studies in clinical research define people younger than 24, 29, and up to 40 as young adults. However, to my knowledge within different categories of young adults, there is only one study (Papadopoulos, et al., 2013) that included young adults to investigate the self-esteem level of people with VI. In their study, among 108 adults ($M=34.81$ years, $SD=11.35$ years), people with VI achieved significantly lower self-esteem scores on the Rosenberg Self-Esteem Inventory (Rosenberg, 1965) than those with normal sight [$F(2,157)=10,200, p<.01$].

However, none of the previous studies identified the self-esteem domains of young adults with VI although self-esteem may be high/low in one domain and not in the other.

Furthermore, previous literature failed to investigate whether physical activity exercise, and sport may improve global self-esteem or physical self-worth in people (children, adolescents and adults) with VI. Before I expand the concept of a potential model that explains self-esteem improvement, namely physical self-worth, due to exercise, it is necessary to identify strategies for self-esteem improvement so I can have a better understanding about designing programs for self-esteem improvement and recognizing all issues that need to be avoided.

2.5.6 Strategies for self-esteem improvement

Supporting Fox's (1997) strategies for self-esteem improvement, Buckworth et al. (2013) claimed that two core types of strategies exist to improve self-esteem:

- 1- Psychological strategies:
 - a- Reducing the importance of activities that do not produce positive affect or success (discounting principle (Harter, 1996)).
 - b- Convincing others that self-esteem is high.
 - c- Engaging in self-affirmation when the self-esteem is likely to become low.
- 2- Behavioural strategies:
 - a- People need to choose activities that have a high probability of success or positive affect.
 - b- People need to withdraw from activities that have a low probability of success or negative affect.
 - c- Social support and approval need to be maximized

Although it is not clear whether the two core strategies, psychological and behavioural, are necessary for self-esteem improvement or one strategy psychological or behavioural would be sufficient, certainly when we consider a social model of disability it appears that people with VI rarely receive all three components of the behavioural strategy for their self-esteem improvement. They do not always receive maximal support. Indeed, individuals with VI are excluded from physical activities despite their integration (George & Duquette, 2006; Place & Hodge, 2001) and do not have options to choose activities because coaches and PE teachers lack the knowledge of how to teach them either a curricular or extra-curricular activity (Lieberman, et al., 2002; Stuart, et al., 2006).

2.5.7 Theories and models

Among all the theories that existed in the literature that aimed to explain the models behind self-esteem improvement due to physical activity it seems that the EXSEM has been the most acceptable model among researchers either in its original or adapted forms (Fox & Wison, 2008). The EXSEM was first developed by Sonstroem and Morgan (1989). The expanded version of EXSEM (which is now used in the literature) developed by Sonstroem, Harlow, and Josephs (1994) describes self-esteem as a multidimensional and hierarchical model. The

model suggests that exercise engagement enhances exercise self-efficacy which leads to better physical self-worth. As a result of the physical self-worth improvement, global self-esteem is also likely to be improved (figure 2.4). According to the EXSEM, increased exercise self-efficacy is a fundamental component for global self-esteem improvement. Self-efficacy has been described as a person's belief about what he/she can do under different sets of conditions regardless of the possessed skills (Bandura, 1997). Bandura further argued that different people with similar skills can have different beliefs about their abilities, such as one person can perceive his/her abilities differently within various conditions. In addition, self-efficacy has been found to be a major instigating force in forming intentions to exercise and in maintaining the practice for an extended time (Dzewaltowski, Noble, & Shaw, 1990; McAuley, 1992, 1993; Shaw, Dzewaltowski, & McElroy, 1992; Weiss, Wiese, & Klint, 1989).

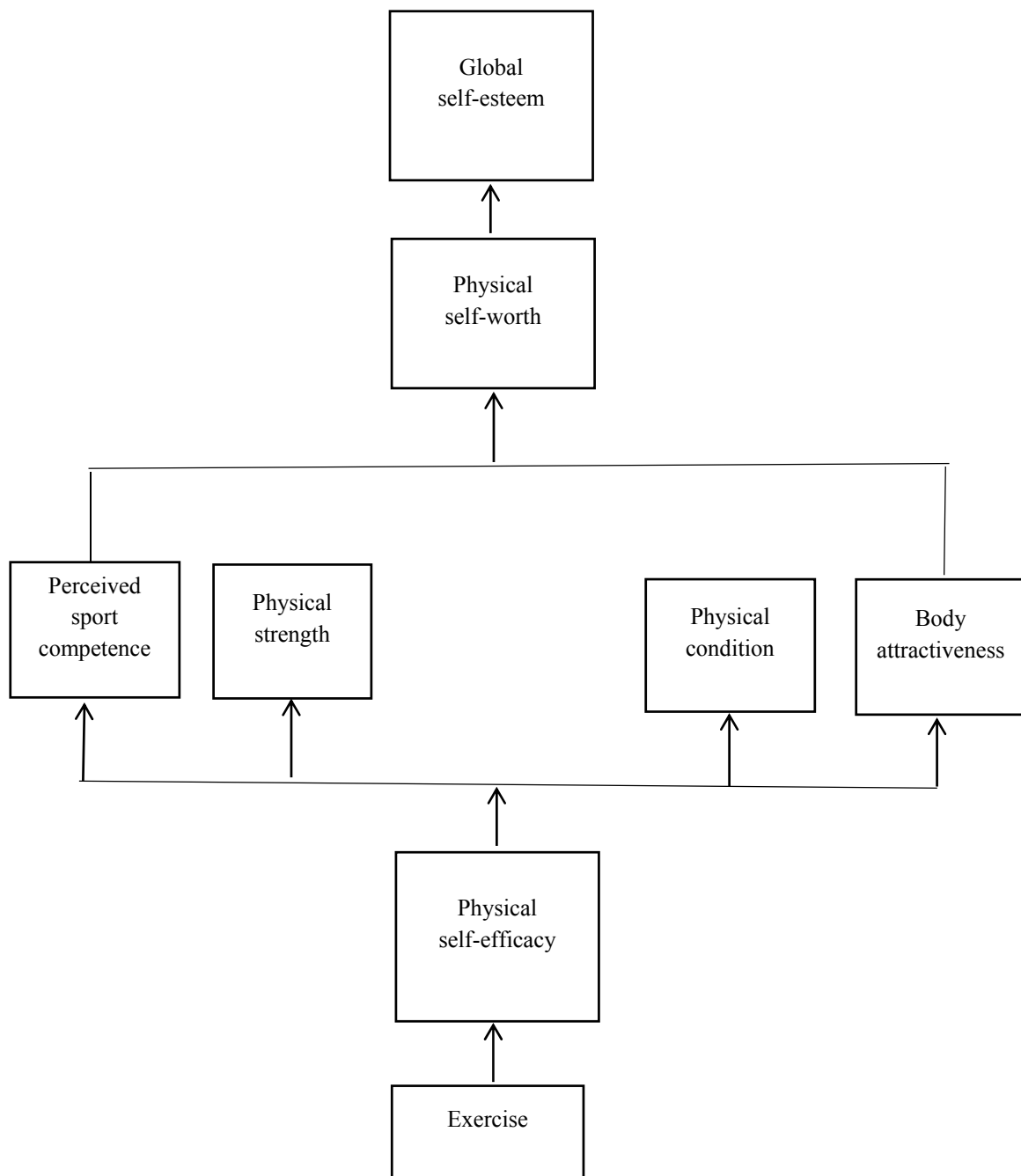


Figure 2.4: The EXSEM (Sonstroem, et al., 1994)

The EXSEM has been considered as a potential help for researchers to understand the relationships between exercise engagement and self-esteem (McAuley et al., 2005) and has been widely accepted in the literature. Among sport psychologists, this model seems to be the most acceptable model that explains self-esteem improvement due to exercise. Previous research recommended utilising the EXSEM to explain an improvement in self-esteem. For example, Elavsky (2010) examined the EXSEM in middle-aged women ($n = 143$) over a 2-year period following a randomized control trial (RCT). He found that increased physical activity increases exercise self-efficacy, reduces body mass index (BMI), improves physical

self-worth and global self-esteem. Importantly, the results showed that the association between reduced BMI and enhancement in physical self-worth and global self-esteem were due to better self-perception relative to physical condition and body attractiveness. Also, Moore, Mitchell, Bibeau, and Bartholomew (2011) aimed to determine whether changes in response to resistance training of college students follow the hierarchical structure of the EXSEM. Since the results appeared to support the EXSEM, the authors strongly recommended that EXSEM be examined with different population groups.

However, the EXSEM focuses only on the physical self-worth, ignoring all other self-related domains (e.g. social, intellectual), which has been assumed as the best predictor of global self-esteem (Harter, 2012). Interestingly, Shapiro and Martin (2010b) found a positive relationship between physical self-worth and global self-esteem in athletes with physical impairments but not between physical self-worth and physical activity participation. The authors explained this relationship based on the previous study which found that people without impairments do not perceive people with impairments as “athletes” (Shapiro & Martin, 2010a).

Moreover, individuals with VI do not value physical self-worth, one of the EXSEM components, as an important domain of their lives (Shapiro, et al., 2008) and cannot participate in exercise programmes due to external factors (non-academic preparation of teachers and being made fun of) (Lieberman, et al., 2002; Stuart, et al., 2006). Accordingly, it becomes doubtful whether exercise would improve exercise self-efficacy and physical self-worth, and consequently global self-esteem of people with VI, as it has been proposed by EXSEM.

Although the EXSEM appears to be an appropriate explanation for self-esteem improvement due to physical activity but results regarding the relationship between physical activity and self-esteem need to be presented with caution. There appears to be a contradiction in the literature whether physical activity (exercise) improves self-esteem.

2.5.8 Does physical activity really improve self-esteem?

Three decades ago it was reported that approximately 60% of studies found a positive relationship between physical activity and self-esteem (Spence, McGannon, & Poon, 2005) although these relationships are often weak and inconsistent (Pavey, 2009). It is not surprising therefore that results of more recent studies have questioned the significance of

changes in self-esteem. In a systematic literature review of 25 studies, Ekeland, Heian, Hagen, and Coren (2005) found that exercise interventions which lasted for 4-20 weeks had positive effects on self-esteem in children and young people aged 3-20 years. However, the authors reported that they included studies that had a high risk of bias and qualified these studies as low quality trials.

To investigate the effect of physical activity on self-esteem, Spence, McGannon, and Poon (2005) included 113 published and unpublished studies that were included with the study criteria. All included studies explored the effect of exercise on the self-esteem of people older than 18 years. Their systematic review demonstrated that exercise participation leads to small significant improvements in global self-esteem. The review also showed that changes in physical fitness led to changes in global self-esteem, whereas skill training programme activities had no effect on global self-esteem. Despite skill improvement, the authors concluded that increases in physical fitness are necessary for self-esteem to improve. However, it must be noted that included studies in Spence et al.'s (2005) review did not use samples of sufficient size to provide adequate power and this may question the effect of physical activity and skill acquisition on global self-esteem.

In addition, global self-esteem is a stable construct which cannot be changed unless the change in the specific domains occur (Fox, 1999; Harter, 1999). In contrast to the effect of exercise interventions on global self-esteem, it seems that scholars agree that physical activity participation improves physical self-worth - across all age groups - which has a strong relationship to global self-esteem (Fox & Wison, 2008). To examine the relationship between self-esteem appraisal and physical activity Bobbio (2009) recruited participants ($n = 211$) aged 19-35 years. The participants were divided into three groups; athletes (sports professionals), non-athletes (people who play nonprofessional sports), and sedentary (people who do not perform any sports activity at all). Results of the study reported significant differences among three groups only in physical appearance and not in performance and social domain scores. Similar results have been found among adolescents (Haugen, Säfvenbom, & Ommundsen, 2011; Inchley, Kirby, & Currie, 2011), college students (Dhurup, 2012), and young people with impairments (Scarpa, 2011). In Scarpa's study, adolescence and young adults with physical impairment who regularly exercise achieved higher scores in global self-esteem and physical self-worth than their peers who did not exercise regularly.

However, caution should be taken into account. Recent reviews recommended further studies about the relationship between exercise and self-esteem (Campbell & Hsusenbals, 2009). Some of the most recent research showed different results compared to the previously conducted studies. For example, Lubans, Aguiar, and Callister (2010) sought to explore the effect of free weights and elastic tubing resistance training on physical self-worth in adolescents. Participants ($n = 32$) completed the study and their average age range was 14.9 years. The interventions were run twice a week for 8 weeks. The adolescents' version of the Children's Physical Self-Perception Profile (Harter, 1988) was used to provide a measure in the physical domain. Despite the small sample size, findings of the study showed that physical self-worth among boys remained stable over the study period. The only significant change among girls was in the free weight resistance training group in that it improved their perceived body attractiveness. The authors did not measure global self-esteem although it has been claimed that physical appearance is the most related domain of physical self-perception to global self-esteem (Fox & Wison, 2008; Harter, 2012).

Consequently, it does seem that not every physical activity improves global self-esteem and/or every self-esteem domain. With respect to people with VI, no literature exists that investigated the relationship between physical activity and their self-esteem. However, when investigating people with impairments, Martin and Vitali (2014) concluded that there is no sport/recreational setting that can be identified as exclusively positive on self-esteem in people with impairments. By contrast, martial arts scholars (Binder, 1999; Funakoshi, 1973) claim the opposite in that martial arts seem to be different to other sport activities.

2.6 Martial arts

2.6.1 Definition of martial arts

According to Lawler (1996) martial arts are defined as various Asian fighting systems that teach combat systems. These systems may be practiced either with or without weapons (Woodward, 2009). However, I cannot agree completely with this interpretation of martial arts since the definition includes Asian fighting systems. I would rather argue that martial arts are self-defence paths with roots in Asian philosophy. Brazilian jiu-jitsu for instance, originated by adapting techniques from Japanese jiu-jitsu, was developed in Brazil (Vidal Andreato et al., 2011). Hence, today there is a new martial arts style called Brazilian jiu-jitsu with its own rules and techniques. Thus, I support Winkle and Ozmun's (2001) perspective

that the Asian arts epitomize society's modern concept of martial arts. Furthermore, I propose that the purpose of martial arts training should be introduced to the definition of martial arts. From my point of view, martial arts is a fighting system, either using weapons or without, that strives for physical and psychological improvement based on an Asian philosophy, and importantly must be functionally used only for self-defence. Consequently, activities such as boxing cannot be classified within martial arts. Instead, it has been described as an ancient sport (Bianco et al., 2013) or combat sport (El-Ashker & Nasr, 2012) and not as an art. This indicates that the main aim of the boxing is not self-improvement but competition and/or winning. The aim of martial arts, as has been previously clarified, is self-defence and not knock out. Martial arts never promote any kind of violence. For instance, karateka love self, family, friends, and country and have to spread both the love and the peace (Funakoshi, 1973).

2.6.2 Difference between martial arts and sports

Although traditional martial arts have much in common with other sports such as the improvement of the physical ability and technical skills (Szucszkiewicz & Maleta, 2007), significant points of difference exist. In non-martial arts exercises the main focus is on winning whereas the International Shotokan Federation reported that the focus of karate is on the mental and physical participation and not necessarily on winning the tournament or receiving a black belt (Funakoshi, 1973). The word "necessarily" indicates that even the developers of martial arts were not against competitions or belt system, but such awards should never be an essential goal for martial arts practice. Yet, karate such as any other sport has been practiced for different purposes, including winning. However, the benefits of self-improvement in all competitive sports (including modern martial arts) are not similar to the traditional martial arts as will be expanded later in the section 2.6.4.1.

Martial arts, namely traditional (non-competitive) martial arts, have emphasized self-knowledge, self-improvement, and self-control (Binder, 1999). Binder claimed that traditional martial arts practice is not limited to teaching self-defence but focuses on: 1) philosophical and ethical teachings that need to be applied to life; 2) a high degree of ceremony and ritual; 3) emphasis on the integration of mind and body; 4) a meditative component. According to Zivin et al. (2001), traditional martial arts practice aims to develop a centred, calm, discriminating mind that is subsequently applied in all areas of life; the antithesis of a mind set for aggression, whether impulsive or not. Previously, Funakoshi

(1973) stated that karate strives to train the mind to develop a clear conscience enabling one to face the world truthfully. He therefore developed the main principles of karate that needed to be followed in order to achieve a full understanding of karate, such as “Never forget that karate begins and ends with respect” or “First know yourself and then know others” or “Never think that karate is practiced only in the dojo (training place)” and “Karate is a life-long pursuit” (Funakoshi & Nakasone, 2003). This means that karate is a way of living rather than mere training.

2.6.3 Is there anything special in martial arts?

It seems that a unique ethical and philosophical perspective of martial arts attracts people to practice martial arts. In a study designed to investigate the reasons for studying martial arts, Twemlow, Lerma, and Twemlow (1996) recruited participants (n = 170) aged 5-63 years. The recruited participants answered a 13-item questionnaire about the factors that had influenced them to choose to study martial arts. Self-defense, physical exercise, self-confidence improvement, and self-discipline respectively were the main reasons for engaging martial arts clubs.

Furthermore, martial arts seeks to improve all these students' needs. For example, students with higher degrees are standing at the top of the row and students with the lower belts are at the end of the row. Every student knows his place according to his belt, which is assumed to improve a discipline. White belt, which is the first belt in the all traditional martial arts, is symbolic of the beginner's mind and remind martial artists to always be ready to discover and to learn (Iedwab & Standefer, 2000).

At the same time, there is respect among all in the dojo. All students must respect each other and a sensei must respect his students. This environment gives a feeling of belonging to the group and this may also be a contributory factor to self-esteem improvement.

2.6.4 Benefits of martial arts

Japanese martial arts were shaped by a philosophy which claims that martial arts must live by the virtues of justice, honour, loyalty, veracity, benevolence, and courage (Funakoshi, 1973; Funakoshi & Nakasone, 2003). Similarly, the practitioners of Chinese martial arts perform physical movements that entailed elements of mental discipline (Winkle & Ozmun, 2001). Taekwondo, a Korean martial arts, teaches discipline and humility-physical development

(Rhee, 1970). Malay martial arts style, silat, is also a lifelong development of a character and identity through which people learn their own strengths and weaknesses (Zainal, 2012). Although there are other martial arts styles that were developed in another countries, for example Filipino martial arts style Kali, many similarities in techniques and philosophical approaches exist within martial arts styles. Due to such unique philosophy that has been promoted by martial artists, it is expected that martial arts practice may improve psychosocial domains and personal traits. This has also been supported by Lantz (2002) who recruited 23 families who were studying aikido, karate, or taekwondo. He reported that for many couples, parents, and children studying martial arts offered opportunities for socialization and friendship. Children made new friends whereas parents were happy to be in contact with other people who had similar interests and values:

“Sarah’s my best friend. We met at tae kwon do. I was ahead of her and so Master Smith had me help her out. We became real good friends. We have sleep-overs with our other tae kwon do friends. I’ve got some school friends, but my best friends are my tae kwon do friends” (Lantz, 2002, p. 573).

Lantz also found that participants in the study improved their self-confidence, concentration, respect, moral development, and school grades. Again these are all possible factors relating to self-esteem. Consequently, the suggestion here is that martial arts practice may impact on self-esteem and this is critically important.

2.6.4.1 Does martial arts practice impact on self-esteem?

Because of the special martial arts philosophy, Binder (1999) claimed that martial arts have a unique influence on the long-term, psychosocial changes seen in participants. Thus, it is expected that martial arts may improve psychosocial domains, including self-esteem, better than other sports. Binder however failed to provide evidence to support his claims. Also, it has been argued that higher global self-esteem may occur because martial artists experience success which they consider as their own achievement without comparing themselves to others (Winkle & Ozmun, 2001) reflecting a mastery approach (Gray, Sproule, & Morgan, 2009). According to the achievement goal theory, participants in the activities that promote mastery goal focus on self-competence which is based on self-improvement and participants’ own effort to achieve their own goals (master a skill) (Wang, Woon Chia, Lochbaum, & Stevenson, 2009). In addition, this assumption supports James’s (1983) self-esteem theory which proposes self-esteem as a result of a relationship between one’s achievements and one’s aspirations following a formula of:

$$\text{Self} - \text{esteem} = \frac{\text{Success}}{\text{Pretensions}}$$

This formula indicates that if a person with VI has success in his own martial arts goals then high self-esteem will ensue. Importantly, this theory reflects subjective success as it is perceived by an individual and not objective success (Emler, 2001) which means that self-esteem becomes affected according to the individual's satisfaction and not comparing to the other, such as the principles that martial arts promote.

Furthermore, Winkle and Ozmun (2001) claimed that martial arts practice improves the social domain of self-esteem, which can impact on global self-esteem. Although Binder and Winkle and Ozmun failed to provide evidence for their claims, I found that women who practiced taekwondo in Finkenberg's (1990) study improved their social self-esteem compared to those who did not. Finkenberg aimed to assess whether self-concept of sighted college women was affected by their participation in taekwondo classes. An experimental group consisted of fifty one ($n = 51$) women whereas forty nine ($n = 49$) women were in the control group. The mean age for the participants in the experimental group was 22.61 years and 22.94 years in the control group. The Tennessee Self-concept Scale provided the measure of self-concept. Although the author did not clarify the duration of the taekwondo programme, the results showed significant differences on the total self-concept scores and on five (physical, personal, social, identity, and satisfaction) out of nine subscale scores for the experimental group. Also, social relationships were previously identified as one of the main reasons for people practicing martial arts (Jones, et al., 2006; Lantz, 2002). Similarly, intellectual components of martial arts training improve intellectual self-esteem and may lead to the enhancement of global self-esteem (Ryan, 2008).

In addition, previous studies identified the effect of martial arts practice on self-esteem among sighted people, but none of these studies examined this effect on people with VI, mechanisms of the improvement, or followed strategies that lead to such improvement. For example, Madenlian (1979) recruited sighted adolescents ($n = 66$) aged 12-14 years and they were divided into three equal groups. The first group received aikido training once a week for two hours over the course of 16 sessions. The second group received therapeutic treatment under the same conditions as the first group. The third group was the control group. All participants answered the Piers-Harris Children's Self-Concept Scale before and after the intervention. Results of the study showed that the experimental groups significantly increased

their self-esteem scores. However, the first group (participants who received aikido sessions) increased their scores more than the group that received therapeutic treatment.

In a study designed by Richman and Rehberg (1986), sighted karateka (n = 60) were recruited with the mean age of 23 years. The participants were divided into four groups; beginners, intermediates, advanced participants, and experts. Rosenberg's Self-Esteem Inventory (1965) was used to investigate the self-esteem level. The authors found that karateka with higher rank in karate had a significantly higher level of self-esteem.

In the review of studies related to the psychosocial outcomes (self-confidence, self-esteem, anxiety, self-acceptance, achievement) of martial arts practice among young sighted people, twelve out of thirteen surveys showed a positive effect of martial arts among these personal traits (Vertonghen & Theeboom, 2010).

However, the literature found that martial arts sessions that focus on self-development may have better effect on self-esteem compared to those that mainly focus on competitions. In Trulson's (1986) study, sighted participants (n = 34) aged 13-17 years were divided into three groups. The first group (n = 15 participants) received traditional taekwondo training. The second group (n = 11 participants) received modern martial arts training. The third group was the control group (n = 8 participants). Participants from the experimental groups attended sessions three hours a week for 6 months. Results showed that participants who participated in the traditional taekwondo achieved significant higher scores in self-esteem in post intervention measures.

Research relating to the effect of traditional martial arts on the self-esteem of people with impairments have also been documented in the literature. The purpose of Graham's (2007) study was to explore the effect of traditional martial arts on the self-perceptions of children with ADHD. Using a case study design, children (n = 7) participated in the 15-week sessions. Participants and their parents were interviewed prior to the intervention and after the intervention, weekly observational protocols and bi-weekly parent phone contacts were also conducted. Results of the study showed that students' self-perceptions of competence improved.

More recently, to investigate whether a karate programme may influence self-concept, social confidence, and quality of life in children with epilepsy, Conant, Morgan, Muzykewicz, Clark, and Thiele (2008) included children (n = 8) 8-16 years old in their study. The

participants attended karate sessions 1 hour a week for 10 weeks. Piers-Harris Children's Self-Concept Scale has been used to measure self-concept. Although this study was limited, significant short-term intervention impacts were difficult to attain. The results that the participants reported demonstrated an improved self-concept and improvement in all domains of health-related quality of life that were measured in the study.

All of the above studies showed that martial arts practice had a positive impact on self-esteem among sighted participants. However, to date, none of the studies investigated the effect of martial arts practice on psychosocial domains, namely self-esteem, in people with VI. In addition, studies of psychological aspects (including self-esteem) and physical participation of people with VI are scant and further study is warranted. However, there is literature that focused on the self-esteem level of individuals with VI.

2.7 Chapter summary

In this chapter I critically discussed the definitions of VI and provided my definition of a person with VI. Also, I discussed the models of disability and concluded that although people with VI acknowledge their impairment and sometimes identify themselves as disabled, they are often socially excluded and/or face social barriers that limit their exercise opportunities. As a multidimensional construct, researchers do not agree whether global self-esteem is lower in children with VI than in those without VI. However, children with VI have lower physical self-esteem and do not consider physical and athletic domains as important parts of their lives. In contrast, adults with VI have lower self-esteem compared to their sighted peers. Martin and Vitali (2014) could not identify recreational activities or sports that certainly may improve the self-esteem of people with impairments. However, martial arts have been considered as activities that go beyond exercise/sport and consequently could be an appropriate path to follow in order to improve the self-esteem of people with VI. Previous research showed that martial arts practice may improve self-esteem in different population groups, yet similar studies on people with VI have not been conducted. In addition, how the change occurs (the EXSEM in martial arts context), the mechanisms that lead to self-esteem improvement, or strategies that instructors utilize to improve their participants' self-esteem have not been explored.

However, the effect of martial arts on self-esteem should be presented with caution. In order to avoid studies that may be at high risk of bias, as those in Ekeland et al. (2005) study, a systematic review of the studies that investigate the effect of martial arts practice on sighted

participants on self-esteem would be helpful. Also, to investigate whether martial arts improves psychosocial characteristics, namely self-esteem, as it has been claimed by martial arts scholars (Binder, 1999; Funakoshi, 1973) and researchers (Vertonghen & Theeboom, 2010; Winkle & Ozmun, 2001) a systematic review which identifies strengths and weaknesses of these studies is warranted.

Chapter 3: The Effect of Martial Arts Practice on the Exercise and Self-Esteem Model Components: A Systematic Review

Chapter overview

This chapter will provide a systematic review of the studies that investigated the effect of martial arts practice on the EXSEM components. At the beginning of this chapter, I will justify the aims of the systematic review and its relationship to the overall purpose of this thesis. Following this, I will present methods of the systematic review that consists of types of studies, types of intervention, types of participants, types of outcome measurements, search strategy, and assessment of the reviewed studies. Consequently, I will demonstrate results of the reviewed studies. At the end of this systematic review, I will critically discuss its results and hopefully provide an appropriate explanation for the results that have/have not found a positive effect of martial arts practice on one of the EXSEM components in sighted people. At the end of this chapter and as a result of the literature review, I will identify the gap in the literature and state the research questions of this thesis.

3.1 Aims

We saw in the previous chapter that most of the studies found a positive effect of martial arts practice on self-esteem in sighted people. However, to date there have been no systematic review studies that examine the effect of martial arts practice on personal traits or psychosocial domains in sighted people. Previous studies were either non-systematic reviews (Vertonghen & Theeboom, 2010) or focused on the effect of a particular martial arts system (e.g. tai chi) on psychological well-being (Wang et al., 2010; Wang et al., 2009). Although one of the aims of this thesis was to investigate the effect of martial arts practice on self-esteem in people with VI, I needed to explore whether martial arts improve self-esteem in sighted people. More importantly, to identify whether martial arts practice is an effective approach for self-esteem improvement in people with VI, I needed to assess the quality of the studies that explored the effect of martial arts practice on the self-esteem of normally sighted people. Also, previous research did not investigate how the change in self-esteem occurs due to martial arts practice or the mechanisms and strategies that lead to the self-esteem improvement. Consequently, this systematic review was designed to investigate whether martial arts practice can improve the components of the EXSEM; exercise self-efficacy, physical self-worth and global self-esteem. Importantly, this review included the quality of the studies as well and did not only examine the effect. In addition, I explored the

components of EXSEM in order to understand whether the EXSEM could be applied in martial arts settings, particularly taking into account that previous research failed to investigate the EXSEM in martial arts context with sighted people.

3.2 Methods

3.2.1 Types of studies

All relevant journal articles or doctoral dissertations that introduced a martial arts programme as an intervention were included in the present review. Only English language articles and dissertations that introduced martial arts intervention for exercise self-efficacy, physical self-worth and global self-esteem improvement were included in this review. Studies that used quantitative methods to explore the impact of martial arts practice on dependent variables were included.

3.2.2 Types of intervention

All studies that introduced one of the following interventions: aikido, Brazilian jiu-jitsu, jiu-jitsu, karate, krav maga, taekwondo, silat, and tai chi were included. Studies that did not specify which style of martial arts practice was introduced (e.g. self-defence, combat sports) were excluded. Also, studies that used martial arts trainings for the purposes of competition were not included. Studies that did not use martial arts as the only activity were also excluded. Studies also had to show both pre-intervention and follow up intervention analysis of data. Pilot studies, case studies, and those that compared experimental group with a control group were included. Studies that only compared the results of two martial arts styles were excluded from the review (e.g. Trulson, 1986; Tsang, Kohn, Chow, & Fiatarone Sinhg, 2013).

3.2.3 Types of participants

All age groups, whether they were sighted or not, were included in the review.

3.2.4 Types of outcome measurements

Studies that explored the effect of martial arts practice on one of the following exercise self-efficacy, physical self-worth, and global self-esteem were included. Studies that measured general/functional self-efficacy (e.g. Yeh et al., 2014) or non-physical self-perception (e.g.

academic self-esteem) were excluded. If a study investigated more than one outcome, those that were not related to the aims of this study were excluded.

3.2.5 Search strategy

Research papers and dissertations were gathered and identified from the following electronic database respectively: Medline, PsychINFO, ERIC, SPORTDiscus, International Bibliography of Social Science (IBSS), Cochrane Library, EMBASE, and Social Science Citation Index. All studies have been updated in the 1st week of November 2014. Key phrases employed in the review were classified within three categories as following: (a) martial arts keywords (aikido, Brazilian jujitsu, Brazilian jiu-jitsu, jujitsu, jiu-jitsu, karate, krav maga, martial arts, taekwondo, tai chi, taiji quan, self-defence and, self-defense); (b) EXSEM keywords (self-concept, self-esteem, general self-esteem, self-image, self-efficacy, exercise self-efficacy, self-acceptance, self-perception, self-worth, physical self-worth, and physical self-perception); and (c) intervention keywords (practice, intervention, effect, group, randomized controlled trials, and RCT). In general, a following strategy was used to combine the key phrases:

#1: Aikido or Brazilian jujitsu or Brazilian jiu-jitsu or jujitsu or jiu-jitsu or karate or krav maga or martial arts or taekwondo or tai chi or taiji quan or self-defence or self-defense.

#2: self-concept or self-esteem or general self-esteem or self-image or self-efficacy or exercise self-efficacy or self-acceptance or self-perception or physical self-worth.

#3: Practice or intervention or effect or group or randomized controlled trials or RCT.

#4: (#1 AND #2).

#5: (#1 AND #2 AND #3).

#6: (#5 NOT #4).

Since “#5” included “#6” I reviewed the studies from “#5” to ensure that none of studies that may be related could be dropped out.

Figure 3.1 illustrates a total number of reviewed articles and the approach I followed in including/excluding the studies. Two main reasons for excluding studies (that were fully screened) were as follows:

- a) did not measure outcome that were within the inclusion criteria. Two examples of these studies are Tousignant et al. (2012) who measured global self-efficacy and Wallsten, Bintrim, Denman, Parrish, and Hughes (2006) who measured confidence.
- b) did not identify which style of martial arts was used as the intervention such as (Weitlauf, Cervone, Smith, & Wright, 2001).

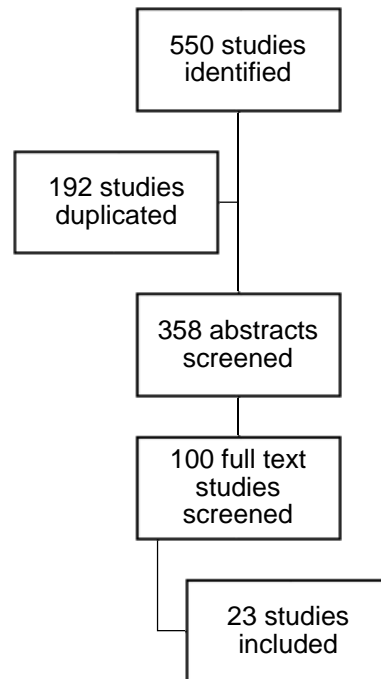


Figure 3.1: The number of studies that were reviewed and included.

3.2.6 Assessment criteria

The quality of the studies was assessed according to the categories described in the Cochrane Collaboration Handbook (Higgins & Altman, 2008). After that I discussed these categories with my first supervisor and if a disagreement occurred the second supervisor was involved in discussion. This approach of assessing the quality of data was used by Ekland, Heian, Hgen, Abbott, and Nordheim (2004). The following criteria were used to assess the quality of the study:

1- Sequence generation

- Low risk of bias: Describing a random component in the sequence generation.
- High risk of bias: Non-random approach or a random approach that was not described.
- Unclear: Insufficient information to permit judgment.

2- *Allocation concealment*

- Low risk of bias: Participants and investigators enrolling participants could not foresee assignment.
- High risk of bias: Participants or investigators enrolling participants could possibly foresee assignments.
- Unclear: Insufficient information to permit judgment.

3- *Blinding of participants, personal, and outcome assessors*

- Low risk of bias: Participants did not know the purpose of the study.
- High risk of bias: Participants knew the purpose of the study.
- Unclear: Insufficient information to permit judgment.

4- *Incomplete outcome data*

- Low risk of bias: No missing outcome data, reasons for missing outcome data unlikely to be related to true outcome.
- High risk of bias: Reasons for missing outcome data likely to be related to true outcome.
- Unclear: Insufficient information to permit judgment.

5- *Selective outcome reporting*

- Low risk of bias: The study protocol is available or published reports include all of the study's pre-specified outcomes.
- High risk of bias: Not all pre-specified outcomes have been reported or reported-outcomes were not pre-specified.
- Unclear: Insufficient information to permit judgment.

3.3 Results

3.3.1 Descriptive characteristics

I will present the characteristics of the included studies describing the following five points: sample, study design, intervention, effect, and bias of the studies. The summary of the descriptive results are presented in the table 3.1.

3.3.2 Sample

Sample (size and mean age) classification was based on criteria of the previous review conducted by Tod, Hardy, and Oliver (2011). Studies examining the effect of martial arts practice on exercise self-efficacy, physical self-worth, and global self-esteem comprised a total population size of 2146 participants that were recruited. Eight studies (34.8%) included a sample size larger than 100 participants. However, not all of these participants completed the experiment and consequently were not included in the analysis.

10 out of 23 studies (43.4%) included children, adolescents, and older adults whereas 14 studies (56.6%) conducted research with participants older than 40 years.

3.3.3 Study Design

A randomized trial with comparison group pretest-posttest was the most common used design among the studies with 43.5% followed by a non-randomized trial with comparison group pretest-posttest (30.4%). One group design pretest-posttest was used in three studies (13%). The authors of one study failed to report the design they used.

3.3.4 Intervention

In 15 studies (65.2%) a tai chi intervention was used as a method for self-esteem improvement. Karate practice was used in three studies (13%) and taekwondo in two studies (8.7%). Judo, aikido, and moo gong ryu were each used once with 4.3%.

Duration of the intervention ranged mainly from 8 to 12 weeks (47.8%) followed by more than 23 weeks (17.4%) and 13-17 weeks (13%). Two studies (8.7%) introduced interventions that ranged between 18 and 22 weeks, while the programme of one study lasted for 28 weeks. Two studies did not report the duration of the introduced programme.

Table 3.1. Description of the included research characteristics.

Characteristics	N	%
Sample size		
<20	3	13
20-39	4	17.4
40-59	3	13
60-79	3	13
80-99	2	8.7
100+	8	34.8
Age		
<18	4	17.4
19-39	6	26
40+	13	56.6
Design		
Randomized trial with comparison group pretest-posttest)	10	43.5
Randomized controlled interrupted time series	1	4.3
Non-randomized trial with comparison group pretest-posttest)	7	30.4
One group design pretest-posttest)	3	13
Non-randomized trial with comparison 3group interrupted time series1	1	4.3
Not reported	1	4.3

Table 3.1. Description of the included research characteristics.

Characteristics	N	%
<i>Intervention</i>		
Karate	3	13
Tai chi	15	65.2
Taekwondo	2	8.7
Judo	1	4.3
Other	3	8.7
<i>Duration (weeks)</i>		
8-12	11	47.8
13-17	3	13
18-22	2	8.7
<i>Duration (weeks)</i>		
23-26	4	17.4
≥ 26 weeks	1	4.3
Not reported	2	8.7

3.3.5 Effect

Fourteen studies showed a significant improvement in at least one dependent variable of this review. Although the other 9 studies did not report significant improvement, they indicated the improvement whether in exercise self-efficacy, physical self-worth, or global self-esteem in the experimental groups. None of the studies showed decreased scores. However, studies that included only one group and those that compared between groups were explored and their results were as follows.

3.3.5.1 One group

Three studies (Conant, et al., 2008; Romero-Zurita et al., 2012; Taylor-Piliae, Haskell, Waters, & Sivarajan Froelicher, 2006) explored the effect of martial arts practice on self-esteem in children with epilepsy, women with fibromyalgia, and older adults respectively. In the first study, Conant et al. (2008) conducted a pilot and included participants ($n = 8$) who completed an 8-week karate programme. Although the participants showed post-intervention improved self-esteem, the improvement was not significant. According to Romero-Zurita et al.'s (2012) results, 3-time weekly sessions for 28 weeks long tai chi programme were sufficient for significant improvement in global self-esteem ($p < .005$) in women with fibromyalgia. Also, 12 weeks of tai-chi practice significantly improved participants' perception to overcome tai chi exercise barriers ($F = 8.89$, $p < .001$) and confidence to perform tai chi continuously for 30 minutes ($F = 18.94$, $p < .001$) (Taylor-Piliae, et al., 2006).

3.3.5.2 Two groups (martial arts experimental vs control)

Ten studies compared the experimental group that practiced martial arts to the control group which was not involved in any extra activity (e.g. physical, educational, supportive, psychological). Anthony (2005) aimed to investigate the effect of a 12-week karate intervention on global self-esteem. The experimental and control group did not show significant differences on the post test score. The author concluded that because of a small sample size (16 in experimental group and 13 in control group who completed the study) significant differences did not exist. Although Lakes and Hoyt (2004) did not identify the number of participants in each group their results showed that moo gong ryu did not significantly improve self-esteem in the experimental group compared to those in the control group. Non-significant differences were also found in Blake and Batson's (2009) study that aimed to compare the experimental group (received tai chi once a week for 8 weeks) to the control group. However, the experimental group showed significant improvement within the group whereas the control did not.

In contrast, judo practice improved self-esteem in adolescents who were highly exposed to drugs, violence, and conflict compared to the control group of children with low risk (Blowers, 2007). An 8-week of taekwondo training was enough to significantly improve the self-concept of 49 college women students compared to the 51 college women students (Finkenberg, 1990). Three studies found that a tai chi programme for over 6 months that was

introduced to older adults improved self-esteem compared to the control group (Lee, Lee, & Frkam, 2007; Lee, Lee, & Woo, 2010; Lee, 2006; Li, Harmet, Chaumeton, Duncan, & Dincan, 2002). Interestingly, all these three studies had large samples (over 98 participants for both groups). Although Taylor-Piliae, Silva, and Shermeta (2012) did not report the duration of tai chi intervention, they found a significant improvement in the exercise self-efficacy of the experimental group participants compared to the control group.

3.3.5.3 Two or more group (martial arts experimental vs experimental/ martial arts experimental vs experimental vs control)

Ten studies compared martial arts practice to other types of intervention or compared martial arts practice with other interventions and control groups. Three of these studies did not show a significant effect of martial arts practice compared to another intervention group (Dechamps, Onifade, Decamps, & Bourdel-Marchasson, 2009; Foster, 1997; Yeh et al., 2013). Only one study did not find significant differences between the martial arts group and the experimental group or control group (Schmidt, 1988). Four studies, however, showed significant improvement in the martial arts experimental group compared to other experimental groups (Brown et al., 1995; Linxuan, 2011; Mustian et al., 2004; Yeh et al., 2011). Two studies that included three or more groups showed significant improvement in self-esteem and exercise self-efficacy of the martial arts group compared to the control or another intervention group (Caldwell, Harrison, Adams, & Triplett, 2009; Yang, 1997). However, in these two studies there were also experimental groups that showed significant improvement in either global self-esteem or exercise self-efficacy.

3.3.6 Bias

Only two studies met all 5 criteria and the risk of bias in the study was assessed to be low (Li, et al., 2002; Yeh, et al., 2011). Two studies met 4 criteria (Blake & Batson, 2009; Yeh, et al., 2013) whereas four studies met 3 criteria (Blowers, 2007; Taylor-Piliae, et al., 2006; Taylor-Piliae, et al., 2012; Yang, 1997). All of these 6 studies were categorized as studies with moderate risk of bias. The other fifteen studies met only 1 or 2 criteria and were assessed to have a high risk of bias. This classification followed previous review conducted by Ekeland et al. (2004). Table 3.2 summarizes included studies, sample size, description of the sample, design, intervention, effect, and bias.

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Schmidt, 1988)	161	College students	A quasi experimental pre & post-test non-equivalent control group	Physical self-worth + GSE	Karate 4 months	ANCOVA	No significant differences between groups F(2.154) = 0.493, $p > 0.01$ GSE F (2.154) = 1.48, $p > 0.05$	0 0	1
(Finkenberg, 1990)	100	College women	Non-randomized trial with comparison group pre & post test	Physical self-worth + GSE	Taekwondo 8 weeks	ANCOVA	Significant differences between groups F= 5.33, $p < 0.05$, F= 9.92, $p < 0.01$	+	1

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Brown, et al., 1995)	135	Healthy sedentary adults	Randomized trial with comparison group pre & post test	GSE + Physical competence	Tai-chi 16 weeks	ANOVA with one group factor by time	Significant differences between groups $F(1.61) = 6.09, p < 0.0164$	+	1
(Foster, 1997)	69	University students	Non-randomized trial with comparison group pre & post-test	GSE	Aikido/ karate 10 weeks	t-test	Differences between pre and post-tests for Aikido: $t = 1.82, p > 0.05$ For Karate: $t = 1.73, p > 0.05$	0	0
(Yang, 1997)	300	Children	Randomized trial with comparison group pre & post-test	GSE	Taekwondo 11 weeks	ANCOVA	Significant differences between groups: $F(2.503) = 6.164, p = 0.002$	+	3

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Li, et al., 2002)	94	Low-active older adults (≥ 65 years)	A randomized trial with comparison group pre & post test	Physical self-worth + GSE	Tai chi 6 months	ANOVA	Significant differences between group $p \leq 0.05$	+	5
(Lakes & Hoyt, 2004)	64	Children	-	GSE	Moo Gong Ryu	ANCOVA	Non-significant differences between groups $F(1,59) = 1.71, p > 0.10$	0	1
(Mustian, et al., 2004)	31	Women diagnosed with breast cancer, who had completed treatment	Randomized controlled interrupted time series	GSE	Tai chi 12 weeks	ANCOVA	Significant differences between groups: $F(1,19) = 7.54, p = 0.01$	+	1

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Anthony, 2005)	40	Adults with no previous experience in martial arts	Randomized trial with comparison group pre & post test	GSE	Karate 12 weeks	Independent sample t-test	No significant differences between groups $t(24.912) = -2.046, p > 0.05$	0	2
(Taylor-Piliae, et al., 2006)	39	Adults ≥ 45 who had at least one major cardio vascular disease risk factor	A quasi experimental controlled trial	Exercise self-efficacy	Tai chi 12 weeks	ANOVA	$F=19.94, df=2.36, p < 0.001$	+	3

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Lee, 2006)	175	Adults ≥ 65 years who had intact cognitive function	Non-randomized trial with comparison group interrupted time series	GSE	Tai chi 26 weeks	MANOVA	No significant differences between groups $p > 0.05$	0	1
(Blowers, 2007)	90	High school students who were at risk of aggressive behaviour	Randomized trial with comparison group pre& post test	GSE	Judo	ANOVA	Significant differences between groups $F(58) = -2.67, p < .05, d = .66, \text{power} = 0.69$	+	3
(Lee, et al., 2007)	139	Adults ≥ 65 years who had intact cognitive function	A non-equivalent pre & post- test control group	GSE	Tai chi 26 weeks	MANCOVA	Significant differences between groups, $F = 2.61, df = 6.131, p = 0.02$	+	1

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Conant, et al., 2008)	11	Children with epilepsy	One group design pre & post test	GSE	Karate 8 weeks	Wilcoxon's sign ranks	$p = 0.07$	0	1
(Blake & Batson, 2009)	20	Adults with traumatic brain injury	A single-centre randomized controlled trial	Physical self-worth	Tai-chi 8 weeks	Mann Whitney U-test	No significant differences between groups, $U=34.5$, $p = 0.24$	0	4

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Caldwell, et al., 2009)	127	University students	Randomized trial with comparison group pre & post test	Exercise self-efficacy	Tai-chi 15 weeks	A paired t-test	Pre-post: $t(28) = -4.504, p = .0005$ Group effect $F(2, 9995) = 5.135, p = 0.008$ Time effect $F(2, 117.02) = 3.201, p = 0.044$	+	2
(Dechamps, et al., 2009)	52	Institutionalized elderly years with different conditions on health related quality of life variables	Randomized trial with comparison group pre & post test	Exercise self-efficacy	Tai-chi 24 weeks	MANOVA	No significant differences between the groups $p = 0.6$	0	1

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
(Lee, et al., 2010)	175	Adults ≥ 65 years who had intact cognitive function	A non-equivalent pre & post- test control group	GSE	Tai chi 26 weeks	MANCOVA	Significant differences between groups, $F = 2.61$, $df = 6.131$, $p = 0.02$	+	1
(Linxuan, 2011)	125	Low-active middle-aged adults	Non-randomized trial with comparison group pre & post test	Physical self-worth + GSE	Tai chi 12 weeks	ANOVA	No significant differences among groups in physical self-esteem GSE: Significant differences compared to the control group: $p = 0.01$	- +	2
(Yeh, et al., 2011)	100	Adults with chronic systolic heart failure	Randomized trial with comparison group pre & post-test	Exercise self-efficacy	Tai chi 12 weeks	Two sample Wilcoxon rank-sum test	Significant differences between groups $p < 0.001$	+	5

Table 3.2. Summary of included studies.

Author	Sample size	Description of the sample	Design	Studied variable	Intervention	Data analysis method	Size of the effect	Effect	Bias
Romero-Zurita et al. (2012)	32	Women with fibromyalgia.	Quasi experimental reversal design	GSE	Tai chi 28 weeks	Friedman test & Wilcoxon test	Pre-post: $p < 0.005$	+	2
(Taylor-Piliae, et al., 2012)	51	Adults ≥ 45 years attending 3 rd phase of cardiac rehabilitation	Non-randomized trial with comparison group pre & post-test	Exercise self-efficacy	Tai chi	t-test	$P < 0.01$	+	3
(Yeh, et al., 2013)	16	Adults with heart failure with preserved ejection fraction	Randomized trial with comparison group pre & post-test	Exercise self-efficacy	Tai chi 12 weeks	Two sample Wilcoxon rank-sum test	Non-significant differences between groups, $p = 0.18$	0	4
Notes: + = positive effect, 0= no effect, bias= the number of criteria that have low risk of bias. GSE = global self-esteem Number of the participants includes the number of recruited participants that started the programme.									

3.4 Discussion of the systematic literature review results

The aim of this review was to determine the effect of martial arts practice on exercise self-efficacy, physical self-worth or global self-esteem in sighted people. Among the 100 studies that were retrieved for the review, only 23 were included. The findings indicate that martial arts practice can improve one or more of the above mentioned variables. Fourteen reviewed studies (60.9%) found a positive impact of a martial arts programme on self-esteem or exercise self-efficacy. Moreover, two high-quality studies (with low risk of bias) found a positive effect of martial arts practice on physical self-worth and global self-esteem (Li, et al., 2002) and exercise self-efficacy (Yeh, et al., 2011). Two out of six medium quality studies also showed a positive impact of martial arts practice on global self-esteem (Blowers, 2007; Yang, 1997), and another two medium quality studies (Taylor-Piliae, et al., 2006; Taylor-Piliae, et al., 2012) revealed a positive effect of martial arts practice on exercise self-efficacy. Four studies revealed a significant impact of martial arts practice on global self-esteem or exercise self-efficacy compared to the other interventions. One of these four studies was a high quality study (Yeh, et al., 2011) whilst the other was a medium quality study (Yang, 1997). This seems to support previous findings that martial arts training increases self-esteem better than psychological therapy designed for self-concept improvement (Madenlian, 1979). Interestingly, six of the high quality and medium quality studies introduced tai chi intervention and only two (Blowers, 2007; Yang, 1997) explored the effect of judo/taekwondo respectively. Tai chi as a martial arts style is based on the collective philosophies of the ancient Chinese, Shaolin martial arts and nature (Gemmell & Leathem, 2006). The highest prevalence of tai chi can be explained by the population of the included studies in the review. Thirteen studies (56.6%) included people over 40 years (some of them with limited physical or functional abilities) and more than half of these studies included people over 65 years. Tai chi seems to be the most appropriate martial arts programme for this population since it is characterized by soft flowing movements (Gemmell & Leathem, 2006; Yeh et al., 2010) in contrast to karate or taekwondo. The two studies that used judo and taekwondo focused on the philosophy of martial arts and their programmes were not focused on the belt-achievement or winning. This traditional martial arts approach that focuses more on philosophy (regardless of

the style of martial arts) supports Trulson's (1986) findings. He found that participants who attended traditional taekwondo scored higher self-esteem than those who practiced a modern taekwondo. The difference between traditional martial arts and modern martial arts is that in the traditional martial arts students participate only for psychosocial and physical goals (Funakoshi, 1973), whereas in the modern martial arts, secondary goals (e.g. winning) may exist. Traditional martial arts are based on breathing techniques, discipline, self-respect, to promote relaxation, self-esteem, and mind-body coordination (Fuller, 1988). Some have suggested that it is not important which style of martial arts people chose to practice but they need to find good instructors who understand the philosophy and the theory of the style (Iedwab & Standefer, 2000; Jones, et al., 2006; Vertonghen, Theeboom, & Cloes, 2012).

The following may help to explain the non-significant improvement in dependent variables across the studies. In a medium quality study (Blake & Batson, 2009) for instance, participants received tai chi intervention once a week. Out of ten participants only four of them attended all eight sessions. Moreover, the participants had traumatic brain injury which means that an instructor with knowledge about this impairment is needed. However, the authors failed to provide information about the instructor. Moreover, studies could not show significant differences (Anthony, 2005; Blake & Batson, 2009; Conant, et al., 2008) due to a relatively small number of participants.

3.5 Research questions

From the literature that has been presented in chapters 2 and 3 it is clear that certain gaps exist. First, limited research exists regarding psychosocial characteristics, namely self-esteem levels of young adults with VI. Except one research (Papadopoulos, et al., 2013) all studies focused on children, adolescents, and older adults. However, previous studies did not investigate the relationships between exercise and self-esteem of young adults with VI. Also, none of the previous studies utilized the EXSEM in the context of martial arts. In contrast to the previous research regarding wide exercise forms, the systematic review revealed that high and medium quality studies showed a positive effect of martial arts practice on the components of

EXSEM among different age groups and population characteristics of sighted people, although the model itself has not been examined in the context of martial arts.

Importantly, martial arts were found to be more effective exercises in the improvement of global self-esteem and exercise self-efficacy than those through educational therapy (Yeh, et al., 2011). Therefore, the systematic literature review showed that martial arts are one of the effective methods for the EXSEM components improvement in sighted people. Moreover, studies that found this impact have been considered as high quality studies and showed a significant improvement in these components. Based on the systematic review there is a reasonable argument that martial arts practice may cause changes in the components of the EXSEM in sighted people.

In addition, as it has been presented in chapter 2 and chapter 3, martial arts appear to be an effective method for self-esteem improvement. However, it is still unknown how/why martial arts practice causes the improvement of self-esteem. We do not know what is happening in the training sessions that lead people to feel better about themselves. Therefore, I conducted three studies in order to answer three research questions that have been developed:

- 1- Does martial arts practice improve self-esteem in young adults with VI?
- 2- What are the mechanisms/reasons for self-reported self-esteem improvement of martial artists with VI?
- 3- What are the strategies that martial arts instructors utilise to improve the self-esteem of people with VI?

In the next chapter I will attempt to answer the first research question that has been developed. For the purposes of the first study, I conducted a pilot study that will be presented at the beginning of next chapter.

Chapter 4: The Effect of Karate Practice on Self-Esteem in People with Visual Impairment

Chapter overview

This chapter will begin with a pilot study that was conducted in order to examine self-esteem measurement in people with VI and to establish a karate programme that was introduced in the main study. The main purpose of conducting the pilot study was to assure my ability to manage the self-esteem questionnaire and the karate programme for participants in the main study. In addition, the pilot study was proposed to improve my communication skills and teaching experience in the Scottish environment. After conducting the pilot study and receiving effective feedback, I conducted the main study of this phase that aimed to investigate the effect of martial arts practice in young adults with VI. Within the main study I will present study aims, detailed methodology with its justification, results, and discussion. At the end of the chapter, I will refer to the additional gap, which is limited knowledge related to the mechanisms that lead to the self-esteem improvement in martial artists.

4.1 Pilot study: The effect of karate practice on self-esteem in adolescents who are blind: A pilot study

4.1.1 Aims

In the previous chapter I found that martial arts practice may be an effective method for self-esteem improvement in sighted people. Hence, I developed my research questions which aimed to investigate the effect of martial arts practice on people with VI and to explore the mechanisms and pedagogies that may lead to such improvement.

However, I did not test within chapter 3 the measurement that would be appropriate for the purposes of this thesis. Therefore, I conducted a pilot study in order to examine how to measure self-esteem in people with VI that would be in agreement with the purposes of the thesis that aimed to investigate the effect of martial arts practice on self-esteem in young adults with VI and to explore the mechanisms and

strategies for self-esteem improvement. Consequently, I designed a pilot study that included adolescents who were blind.

For the purposes of the pilot study, a multidimensional measurement of self-esteem was selected. Previous research (Shapiro, et al., 2008; Sherrill, et al., 1990) used and examined validity and reliability of Self-Perception Profile for Adolescents (SPPA) (Harter, 1988) in adolescents with VI. Piers-Harris Children's Self-Concept Scale second edition (Piers-Harris 2) is a multidimensional model as well, and covers six self-esteem domains (behavioral adjustment, intellectual and school status, physical appearance and attributes, freedom from anxiety, popularity, and happiness and satisfaction). However, this scale was not appropriate for the purposes of the pilot study since it did not determine the importance of physical activity for children. As this thesis is related to physical activity and global self-esteem the Piers-Harris 2 was rejected as a measurement tool.

Furthermore, measurements that were developed by Harter's contribution for different age groups are designed so that every item of the questionnaire has two parts, for example: "Some teenagers are often disappointed with themselves" BUT "Other teenagers are pretty pleased with themselves" and the participants have to choose a description that best fits and then indicate whether description is 'sort of true' or 'really true' for them. Although there is no evidence that adolescents with VI did not understand the way to answer the SPPA, a study with sighted adolescents showed a lack of knowledge among some participants about the way of answering the questionnaire (Wichstrom, 1995). Therefore, it was necessary to test the questionnaire on students with VI so that I could be confident that they understand the research tool.

I considered a pilot study as a first step for my thesis to examine whether I could actually achieve global self-esteem measurement in people with VI. In addition, studies about martial arts (karate) and people with VI do not exist in the literature. We know that there are people who are VI engaged with martial arts (karate), however, the literature about the methods of teaching martial arts people with impairments in general and people with VI in particular is insufficient and therefore I believed that this could provide me an orientation about the components of the

programme that was going to be used in my first study. Also, this would provide me an opportunity to teach martial arts in English to a different population group in the settings in which I did not have previous experience and to manage the questionnaire. Lastly, interviewing the participants would develop my skills in conducting the interviews that I used in all of my three studies.

4.1.2 Methods

4.1.2.1 Participants

A school in Scotland with a VI unit received the study proposal. After the discussion between the head of the unit and myself, parental consent and information sheets were distributed to the students in the unit (appendix B). Three out of seventeen sheets were returned with three adolescents agreeing to participate. However, one participant subsequently refused to take part in the study. Two adolescents agreed to be part of the study. Ana (pseudonym) aged 15 years is blind and can see light, strong colours, and shapes. David (pseudonym) is 16 years old and has been identified as blind with the ability to see light and shapes. David also has a physical impairment. Profiles of the participants are presented in the table 4.1.

Table 4.1. Profiles of the two adolescents who involved in karate programme.

Participant/variable	Age (years)	Gender	Impairment	Vision experience
Ana	15	F	VI	Yes
David	16	M	Visual and physical impairments	Yes
<i>Note:</i> Age was reported by the participants at the beginning of the programme				

4.1.2.2 Measures

Global self-esteem and self-esteem domains were measured using SPPA (Harter, 1988). The SPPA was developed in the USA but widely used in other countries (Rose, Hands, & Larkin, 2012), as well as with adolescents who are VI aged 15-17 years (Shapiro, et al., 2008). It contains 9 items; scholastic competence, behavioural

conduct, social acceptance, physical appearance, athletic competence, romantic, close friendship, job competence, and global self-esteem. Each subscale consists of 5 items which therefore totals 45 items.

Following the karate intervention programme I conducted semi-structured interviews with the participants. These interviews aimed to develop my interview skills and to have a better picture of structuring the questions and asking sub questions. The interviews were designed so that they could investigate the adolescents experiences about karate practice, and this design would be in agreement with the three main studies of the thesis. The interviews were divided into different categories and based on the SPPA so that the interviews included questions about different life domains (e.g. scholar, physical, athletic, social) in addition to the general questions that were related to the general feeling about the karate programme. The interviews lasted for about 35 minutes and were audio recorded. Participants' and parental permission was received before the interviews were conducted (appendix C).

4.1.2.3 Procedure

The participants completed the SPPA two days before the karate programme started. They answered the questionnaire verbally. According to Shapiro et al. (2008) when working with participants who are VI, Harter's scales must be administrated in large print, in braille, or verbally. The first option was excluded due to the limited visual abilities of the participants. Braille teachers in the school were busy at that time, and therefore I decided to verbally administrate the questionnaire. The participants received a 50-minute karate training one-on-one twice a week. The programme lasted 12 weeks. At the midpoint, 6 weeks into the karate programme, the participants verbally completed the SPPA again. Two days after the karate programme was completed (12 weeks) the participants answered SPPA again for the third time following the same procedure as in the first two times. I included all nine domains of the SPPA in order to examine whether I could manage the questionnaire and to gain the maximal experience of administrating the questionnaire.

4.1.2.4 Karate programme

Although martial styles promote similar philosophies I decided to offer the participants karate sessions for two reasons. First, judo is the most famous martial arts style among people with VI, however, I contacted judo instructors who had previous experience with children who were VI but they were not interested in the study. The second reason was that in all other martial arts systems, to my knowledge, there were no educated instructors in Scotland who had previous experience with adolescents who were blind. All sessions therefore, were supervised by me as a 3rd Dan karate instructor (3rd level) and two years' experience teaching children who are VI martial arts. However, being a researcher and an instructor a potential risk of bias could have existed although I was qualified to deliver the participants basic martial arts skills. Studies that are non-blinded allow participants, instructors, and programme assessors to be aware of the study aims. Accordingly, this situation provides participants an opportunity to answer the questionnaires as it is desired by the researcher (Schulz, Chalmers, & Altman, 2002). This means that students from the current study may answer the questionnaires according to my expectation of self-esteem improvement. Importantly, this does not seem to apply in this study as the main purpose of the pilot study is to improve my skills in administering the questionnaires for people with VI and to adapt myself within the Scottish environment rather than to examine the effect of karate program on self-esteem. In addition, it was not expected from secondary school children to be familiar with mechanisms of self-esteem improvement and to have knowledge about the effect of important self domains on global self-esteem as there is a separate field of exploring "self" within developmental, cognitive-developmental, and sociocultural aspects (Harter, 2012) which is usually given within psychology courses. So although I was aware of any potential bias I believe none occurred.

Before the programme started and following teaching considerations developed by Hodge, Lieberman, and Murata (2012) I identified the students' sight, their previous physical activity experience, and determined if there were any other impairments. Although only two participants were involved in the pilot study, the programmes

were different since one of the participants had a physical impairment in addition to his VI.

All sessions began with warm-up and stretching exercises. The aims of general warm-up from increasing core temperature, blood flow, and preparing the body for exercise, has long been shown in the literature (Fletcher & Jones, 2004). The general warm-up was followed by stretching exercises (Hede, Russell, & Weatherby, 2011). Stretching exercises included all body parts; neck, hands, arms, shoulders, torso, legs and feet. This whole part (warm-up and stretching) lasted for about 20 minutes in the first 4 weeks. After 4 weeks, I observed that the participants improved their cardiovascular endurance and the focus became on the karate skills. Although cardiovascular capacity was not measured the improvement was noticed through the duration of their running ability. For example, in the first session David could run only for less than 45 seconds while leaning on a wall, whereas at the end of the programme he ran for eight minutes without the need to use the wall as support. After the warm-up, the participants received different techniques of karate that are explained below.

Ana

- 1- At the beginning Ana received the basic blocks and punches gedan barai, age-uke, and oi-zuki (downward block, upper block, and straight punch respectively) and zenkutsu dachi (front stance). She received verbal explanation of each stage of the movement. For instance in age-uchi performance with right hand, Ana was asked to draw an arc from the hip upward with her closed fist. It was clarified that i.e. “right hand” should be outside and cross with the left hand which in the meantime should be pulled back to the left hip.
- 2- Phase two included the above mentioned skills with moving forward (zenkutsu-dachi). This demands better arm-knees-feet coordination. At this phase every movement was divided into two stages. The first one was half step, at the point where the feet are closed but the arms are not moved. In the second stage she had to complete arm movement.

- 3- Ana was offered the first kata (Heian Shodan) following the same principles from the previous phase. Due to the unexpected fast improvement in the meantime she received mai-geri (front kick).
- 4- In the last three weeks of the programme the first 17 movements (out of 21) were completed. Hence, shoto-uke (knife hand block), which is essential to complete the last four movements of the kata was delivered. This was accompanied with the other two blocks uche-uke and soto-uke (inside forearm block and outside forearm block respectively).
- 5- Before completing the kata she learned kokutsu-dachi (back stance) which is one of stances most accompanied with shoto-uke.

David:

- 1- Phase one was similar to Ana's first phase. However, due to limited leg abilities stances were excluded. Although David sometimes used a wheelchair he was encouraged to do all the work on his feet instead of using a wheelchair and David was happy to be engaged in that way.
- 2- The same phase as the phase three from the Ana excluding mai-geri.
- 3- In this phase David was offered simple bunaki (kata explanation) that are used in Heian Shodan. It was appropriate since for bunaki performance there are no strict rules of stances. This was performed only with the instructor.

Both class participants were doing press-ups and sit-ups. During all classes they received information about the philosophy of karate. This information included the twenty guiding principles of karate (Funakoshi & Nakasone, 2003) and another principles from the book "Karate-Do My Way of Life" (Funakoshi, 1973) that I found valuable to provide to the participants. Selected philosophy aspects of Zen (name of a system of Buddhist mediation) and Fudokan Karate that promotes traditional karate style were also delivered to the participants.

4.1.2.5 Data analysis

Although the main purpose of this pilot study was not to investigate the effect of karate practice on global self-esteem in adolescents with VI, I used statistical

analysis to determine if I have been successful in properly administering the SPPA. This analysis reflects my ability of running the karate programme and managing the questionnaires. Data analysis would also inform me if I have been successful in managing being both, researcher and instructor, and consequently determine if a bias in the study existed or not. For quantitative data analysis a Friedman ANOVA was used. The Friedman test is used when the same participants produce three or more scores and researchers seek to test the differences between these conditions (Field, 2009; Greene & D'Oliveira, 2005). I could not use an ANOVA since the sample was small and subsequently data were not normally distributed.

Since the interview was designed through different themes, a qualitative data analysis approach was also used (van Manen, 1997) in order to develop my qualitative data analysis methods and skills. The first step consisted of revealing phrases which were highlighted, coded, and assigned meaningful labels. Interpretative codes and variance in the labels were reviewed until an understanding of the relational knowledge of the data was attained and matched to the quantitative results. In the field of VI and physical activity the similar approach was followed by Goodwin, Lieberman, Johnston, and Leo (2011).

4.1.3 Results

First, there were no missing data and the participants succeeded to answer all questions of the SPPA. In addition, the participants successfully answered both the questionnaires and interview questions. Table 4.2 shows self-esteem scores that the participants achieved in each of the global self-esteem, and self-esteem domains. This table demonstrates the mean, standard deviation, minimum and maximum scores, mean rank and statistical significance of two participants at the beginning, midpoint and at the end of the programme.

Table 4.2. Two adolescents' scores in global self-esteem and self-esteem domains.

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Mean Rank	Exact Significance
Global self-esteem							
pre	2	3.200	.8485	2.6	3.8	1.00	.333
mid	2	3.500	.7071	3.0	4.0	2.25	
post	2	3.600	.5657	3.2	4.0	2.75	
Athletic competence							
pre	2	1.500	.7071	1.0	2.0	1.00	.333
mid	2	1.900	.7071	1.4	2.4	2.25	
post	2	2.100	.4243	1.8	2.4	2.75	
Physical appearance							
pre	2	2.600	.2828	2.4	2.8	1.25	.333
mid	2	2.900	.1414	2.8	3.0	1.75	
post	2	3.100	.1414	3.0	3.2	3.00	
Scholastic competence							
pre	2	3.5.00	.7071	3.0	4.0	1.75	1.000
mid	2	3.500	.7071	3.0	4.0	1.75	
post	2	3.600	.5657	3.2	4.0	2.50	
Social acceptance							
pre	2	2.400	.0000	2.4	2.4	1.75	1.000
mid	2	2.500	.1414	2.4	2.6	2.50	
post	2	2.400	.2828	2.2	2.6	1.75	

Table 4.2. Two adolescents' scores in global self-esteem and self-esteem domains.

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Mean Rank	Exact Significance
Job competence							
pre	2	3.400	.5657	3.0	3.8	3.00	.500
mid	2	2.600	.5657	2.2	3.0	1.50	
post	2	2.600	.2828	2.4	2.8	1.50	
Romantic appeal							
pre	2	1.900	.1414	1.8	2.0	1.00	.167
mid	2	2.400	.2828	2.2	2.6	2.00	
post	2	2.700	.1414	2.6	2.8	2.00	
Behavioural conduct							
pre	2	3.700	.4243	3.4	4.0	2.00	1.00
mid	2	3.800	.0000	3.8	3.8	1.75	
post	2	3.900	.1414	3.8	4.0	2.25	
Close friendship							
pre	2	3.400	.2828	3.2	3.6	1.00	.333
mid	2	3.700	.4243	3.4	4.0	2.50	
post	2	3.700	.4243	3.4	4.0	2.50	

Although the statistical difference appeared to be difficult to achieve, the results showed that global self-esteem, athletic competence, physical appearance, romantic appeal, and behavioural conduct improved twice; after six weeks and at the end of the programme. In contrast, job competence was reduced twice. Scholastic competence was improved after 12 weeks whereas close friendship improved after 6 weeks but not after 12 weeks. Social acceptance increased after 6 weeks into the

programme but then retreated to the baseline measure at the end of the programme. The biggest change occurred in the romantic relationship domain followed by athletic competence, physical appearance, and global self-esteem. These results reflect that the bias of my interference as being the researcher and the instructor did not impact the participants' answers.

Furthermore, the interview data indicate that the participants had a full understanding of the questions. Their answers showed appropriate awareness of the questions across different life domains, particularly regarding global self-esteem and the karate intervention programme. For instance, talking about the general benefits of the karate intervention programme Ana said:

"It gave me a variation, em, you know doing something different haven't done before, experience. You know what it is like. Now if you do get DVDs and films where karate is a feature I can understand better what's going on, you know it's easier to picture it. Because I am actually frustrated if I can't picture something but now I can. Em, I don't know, em, I don't think it's changed anything outside, like of.... like my everyday life."

David also added some physical and psychological benefits reflecting his understanding of the questions:

"I tend to think... to think about something I do before anyway. Em, so I am less inclined to make rush judgments. And I think that something like karate helps people avoid but I don't need so much help with that.....I think my balance is a lot better, and em, I don't know if it's directly because of karate but I am a lot more steady and my fitness and particularly my stamina em. But as well breathing techniques I learned in karate. I think that's quite helpful because if you feel stressed or angry just using that breathing helps it calm down..... Just helped me be more relax, keep calm, em, keep control like my emotions now better."

Talking about the benefits of the karate intervention programme on her physical and global self-esteem, Ana said:

"Ehm, it's just, it makes me feel better myself. It's nice to let go for the smaller sizes and clumps and you have more options. And I am not going by a comparison of what other people look like, em, I only see myself but do not even see what other people see. And that's quite hard, so, just kind working the basis understand better to a point."

In addition, Ana talked about her perception of physical activity and mentioned some of the reasons for not being more physically active:

“I am always last in a race. I can never get very high of the high jump. I am just not that kind of person. I am a lot more into books and writing and academics than sports. I would rather do half an hour homework than doing half an hour running. Put it in that way.”

These quotes indicate that the participants effectively answered the questions that appeared to be clear to them. Importantly, this trend of answer-question relationship understanding appeared across all domains and therefore I felt prepared to conduct interviews with the participants from the three main studies.

4.1.4 Conclusion of pilot study

The pilot study initially aimed to prepare me for conducting the main research study, namely study one. I immersed myself in the Scottish environment and was ready to conduct interviews with participants since I found that students could understand me during the karate sessions as well as during the interviews. Importantly, the benefits that I was expecting from the pilot study were met. The pilot study helped me to administrate the self-esteem questionnaire, to construct interviews, to determine the components of the karate programme for the first main study, and to analyse data, namely interviews.

4.2 Main study

4.2.1 Aims

The pilot study has shown that questionnaires developed by Harter’s contribution may be effectively employed when measuring the self-esteem of people with VI. In addition, the martial arts (karate) programme that was offered to two adolescents with VI provided important feedback about the way I needed to communicate with the participants.

Consequently, in order to answer the first research question, that aimed to investigate the effect of martial arts practice on young adults with VI, I sought to recruit participants with VI aged 18-40 years. Previous research has limited focus on self-esteem level of young adults (< 40 years) with VI as their studies have mostly focused on children and adolescents (e.g. Shapiro, et al., 2008). In the Papadopoulos et al. (2013) study among 108 adults ($M = 34.81$ years, $SD = 11.35$ years), people

with VI achieved significantly lower self-esteem score on the Rosenberg Self-Esteem Inventory than those with normal sight. However, the authors did not explore the relationship between physical activity and self-esteem of young adults with VI. Yet, this relationship has been investigated in children and adolescents with VI (Shapiro, Moffett, Lieberman, & Dummer, 2005; Shapiro, et al., 2008).

As it has been discussed in the literature review (section 2.6.2), martial arts are considered to be a unique form of exercise that focuses on the correct mental and physical participation and not simply on winning or receiving extrinsic rewards such as a black belt (Funakoshi, 1973). Among these benefits, martial arts practice may cause an improvement in social skills and morality (Lantz, 2002) and intellectual competence (Ryan, 2008). Previous studies have shown a positive impact of martial arts on exercise self-efficacy (Caldwell, et al., 2009), physical self-worth (Li, et al., 2002; Linxuan, 2011), and global self-esteem (Brown, et al., 1995; Lee, et al., 2010; Lee, 2006; Mustian, et al., 2004). However, little evidence shows whether this change in the EXSEM components may last in the detraining period. Romero-Zurita et al. (2012) explored the effect of martial arts detraining on global self-esteem in twenty three ($n = 23$) women with fibromyalgia. Rosenberg's Self-Esteem Inventory results showed lower detraining scores compared to the posttest scores but higher than the baseline scores. Yet, their study focused on global self-esteem and not on the components of the EXSEM.

Therefore the purposes of this study were to answer the first research question of this thesis and sub questions that also needed to be addressed to have a better understanding of the effect of martial arts practice on self-esteem in people with VI. The aims of this study were to:

- a- investigate the effect of martial arts programme on self-esteem in young adults with VI through the EXSEM.
- b- investigate the effect of martial arts programme on self-esteem in young adults with VI 3-months following the programme.

- c- provide descriptive analyses of self-efficacy, physical self-perception, and self-esteem levels in young adults with VI.

4.2.2 Methods

4.2.2.1 Experimental design

For the purposes of this study I followed the multiple baseline case study approach that consisted of the questionnaires and interviews to investigate the effect of martial arts practice on self-esteem in young adults with VI. It has been recommended by Yin (2014) to utilize case studies when investigating whether an intervention programme had worked or not. For the purposes of my study and according to the G*Power analysis, I needed 176 participants to conduct comparison group pretest-posttest and 45 participants for one group design pretest-posttest. However, as it has been discussed (section 2.2.1) the prevalence of people with VI is low compared to the others with different impairments and represents a relatively small pool of the overall population (Lieberman, et al., 2013; Sherrill, 2004). In addition, researchers that recruited people with impairments have utilised case studies. About 30% of data conducted on students with learning disability used a single-subject design (Swanson & Sachse-Lee, 2000). Also, martial arts studies that recruited people with impairments of higher prevalence than VI (Conant, et al., 2008; Graham, 2007) recruited a low number of participants (n = 8, n = 7 respectively).

According to Yin (2014) two main types of case study designs exist; single-case study designs and multiple-case designs. Yin argued that a primary distinction in selecting the desired design is that the single-case studies should be conducted under the following five rationales: a) critical case (e.g. critical case for a theory); b) unusual case (e.g. specific injury or disorder); c) common case (e.g. to capture the conditions of everyday situations); d) revelatory case (e.g. studying a case that has been identified as inaccessible to the science inquiry); and longitudinal case (e.g. investigating how certain conditions change over time). Barker, Mellalieu, McCarthy, Jones, and Moran (2013) added that the single case study approach is particularly valuable either when research is embarking on a new area or when working with unique populations. Since I aimed to investigate the effect of martial

arts practice on self-esteem in young adults with VI none of the above mentioned conditions seemed to be in agreement with the aims of this study.

Therefore, I used a multiple baseline study that aims to meet the replication logic principle (Hersen & Barlow, 1976). This means that within the multiple baseline approach a researcher seeks to answer a research question through analysing more than one case. Conclusions from more than one case are more powerful than those coming from a single case and provide a stronger effect (Yin, 2014). Importantly, if the baseline scores change when the programme is introduced, the effects are assumed to be attributed to the programme rather than to the external factors (Kazdin, 2011). In addition, two types of multiple baseline designs exist in the literature; concurrent and non-concurrent baseline approaches (Carr, 2005). In the concurrent multiple baseline design (the most common multiple baseline design) two participants' baselines are evaluated at the same time whereas in the non-concurrent multiple baseline design participants may be evaluated at different time points (Watson & Workman, 1981).

4.2.2.1.1 Multiple baseline design in the field of exercise psychology

The multiple baseline design was first introduced by Baer, Wolf, and Risley in 1968 (Carr, 2005). This approach consisted of repeated measurements over a period of time and introduces a sustained programme (intervention) on a staggered schedule (Rhoda, Murray, Andridge, Pennell, & Hade, 2011). Although randomized controlled trials are the predominant approaches in experimental interventions (Biglan, Ary, & Wagenaar, 2000), a multiple baseline approach was described as a viable alternative to the RCT which has lower cost and uses smaller sample sizes which are still statistically rigorous (Hawkins, Sanson-Fisher, Shakeshaft, D'Este, & Green, 2007). Furthermore, multiple baseline studies have played a pivotal role in the development of programmes in clinical psychology (Barlow & Hayes, 1984), education (Kratowill, 1978), and represented 24.7% of the 89 empirical studies published in Behavioural Interventions between 1999 and 2003 (Carr, 2005). In the field of sport and exercise psychology a multiple baseline approach (namely AB) also represents one of the key methods for determining intervention effectiveness in applied research (Barker, McCarthy, Jones, & Moran, 2011). In the AB design, data are collected

during an A phase (baseline) until a stability is recorded. A programme is then introduced during a B phase and data are observed for change in level or trend. This design has also been considered stronger than the other design called a “B design” which does not cover the baseline phase (Wong, 2010). Repeated pretest-posttest design and periodic treatment design are two other designs that represent a multiple-baseline approach. In these two approaches, first the stability is estimated and then after every session, or more often, the evaluation of a dependent variable is done. However, my study explored self-esteem change which was not expected to occur after one session and would need a few weeks or a few months to observe the change. Therefore, such approaches were not considered to be appropriate for my case study in contrast to the AB approach.

4.2.2.2 Participants

In order to recruit participants, a description of the present study was outlined and sent to the disability offices at both the University of Edinburgh and Edinburgh Napier University. Six students subsequently contacted me for further information. More detailed information about the study was emailed to the six respondents. However, one student did not respond and therefore only five young adults ($n = 5$) (four males and one female) were recruited for this study. Profiles of these students are presented in table 4.3 below.

Table 4.3. Profiles of the five student participants.

Participant	Age (years)	Visual impairment	Gender	University level
P1	19	6/60	F	Undergraduate
P2	19	Visual field of 5° & 10°	M	Undergraduate
P3	24	6/18	M	Undergraduate
P4	38	2/60	M	Undergraduate
P5	40	Monocular blindness	M	Postgraduate
<i>Note:</i> P1= participant one, P2= participant two & so forth.				

4.2.2.3 Measures

Following the EXSEM, three questionnaires were used:

4.2.2.3.1 Exercise self-efficacy

Self-efficacy scales utilised in research need to be related to the particular domain of the study aim (Bandura, 1997, 2006; McAuley, 1992). For example, when investigating reading or writing self-efficacy, scales that measure reading and writing self-efficacy should be used respectively. Therefore, a scale that was employed in my case study was exercise-related scale. An independent variable in this study was martial arts, which may indicate that the designed scale had to be measuring perceived self-efficacy of martial arts skills. However, Buckworth et al. (2013) consider the level of subscale specificity as complicated due to a lack of knowledge about the range of physical activity/skill experience of recruited participants. It is hard for people to rate their confidence and perception of martial arts if they have never tried this exercise before. Consequently, perceived self-efficacy of the participants would be rated within different self-efficacy sources. Before beginning the programme, the source might be vicarious experience, verbal persuasion, physiological and affective states, or integration of efficacy information, whereas during and after the programme there will exist a mastery experience source. According to Bandura (1998) mastery experience is the most influential source of efficacy information. This undesirable confounding extraneous variable could influence the results of the study. Therefore, following an example of others (Yeh, et al., 2011; Yeh, et al., 2013), I used an exercise self-efficacy scale in the context of martial arts.

Although different scales have been designed for the purposes of exercise self-efficacy measurement, some of these scales have been strongly criticized and considered as inappropriate for the exercise self-efficacy measurement. For instance, Physical Self-Efficacy Scale (PPA) developed by Ryckman, Robbins, Thornton, and Cantrell (1982) was one of the most employed self-efficacy scales in exercise settings until the beginning of the 21st century (Hu, McAuley, & Elavsky, 2005). Biddle and Mutrie (2008) do not accept this scale as a self-efficacy measurement

arguing that the PPA generalises perceptions of physical ability and self-presentation confidence but not self-efficacy as defined by Bandura. Furthermore, Hu, McAuley, and Elavsky (2005) conducted four studies that examined the validation of (PPA) and recruited middle –aged and older adults. They used different self-efficacy scales (The Exercise Self-Efficacy Scale, The Barrier Self-Efficacy Scale, Sit-up Self-Efficacy Scale, Gait Self-Efficacy Scale and the PPA) and self-esteem scales (Rosenberg Self-Esteem Scale and Physical Self-Perception Profile). Analysis of the four data sets showed that the PPA seems more reflective of self-esteem rather than beliefs about personal abilities, and therefore, the authors called for using the PPA as a physical self-esteem measurement and not as a self-efficacy measurement.

The other type of exercise self-efficacy scales are barriers self-efficacy scales which assess a person's confidence to engage in a regular physical activity and face the common barriers to exercise (McAuley, White, Mailey, & Wojcicki, 2012). Such scales assess persons' confidence in being physically active in a number of situations which may limit their physical activity (Bandura, 2006). This category of the scales was not appropriate for my case study due to the specific sample population (people with VI), while barriers self-efficacy scales were mostly utilized for people without VI and/or impairment (McAuley, 1993; Taylor-Piliae & Fiatarone Sinhg, 2004; Taylor-Piliae, et al., 2012). However, as it has been discussed in the literature review, people with VI face social barriers that are different to those without VI, such as discouraging behaviours and poor knowledge of PE teachers about VI (Robinson & Lieberman, 2004; Winnick, 1985) and lack of opportunity and awareness of opportunities (English Federation of Disability Sport, 2013).

The other type of exercise self-efficacy is adherence self-efficacy which assesses a person's beliefs in his/her ability to adhere to a specified regimen of physical activity (McAuley, et al., 2012). This type of measurement appeared to be the most appropriate scale for the purposes of the case study. Adherence self-efficacy scales assess a person's belief in the ability to continue an exercise programme at specified temporal increments. Furthermore, this category of the scales appeared to be the most appropriate for the aims of this study since the literature found its direct and indirect relation to an array of physical activity outcomes such as quality of life and

self-esteem (McAuley, et al., 2012). McAuley and colleagues argue that adherence self-efficacy measures, in contrast to the barriers self-efficacy scales, are associated with real physical activity participation and outcomes associated with physical activity engagement such as self-esteem and quality of life.

Therefore, The Exercise Self-Efficacy Scale (EXSE) (McAuley, 1993) was used for all five participants. The scale was developed for sedentary middle aged adults and consists of 8 questions in which participants have to rate their confidence to participate in moderate physical activity 3 times for more than 40 minutes during the next week, the next two weeks; and so forth until the eighth week. The following is an example of the first item of the EXSE: “I am able to continue to exercise three times per week at moderate intensity, for 40+ minutes without quitting for the NEXT WEEK”. Since no one particular activity exists within the phrase “exercise”, using this scale with such items can include karate.

Furthermore, this scale captures variation in mode of activity rather than focusing solely on aerobic activity (Elavsky et al., 2005), and meets Bandura’s (2006) recommendations for a scoring system. Self-efficacy scales with the 0-100 response format is a stronger predictor of performance than one with a 5-interval scale (Bandura, 2006; Pajares, Hartley, & Valiante, 2001). The items on the EXSE scale were ranked on the basis of a 100-point percentage scale composed of 10-point increments, ranging from 0% (not at all confident) to 100% (highly confident). The scale has been used in a study that included people with impairments aged 22 years (Motl, McAuley, & Snook, 2007). Motl and colleagues reported internal consistency based on coefficient alpha for the EXSE .99. This high internal consistency of .99 was also found in older participants (Hu, et al., 2005). Based on the above discussion, I used the EXSE for the exercise self-efficacy measurement.

4.2.2.3.2 Physical self-worth

Physical Self-Perception Profile (PSPP) (Fox & Corbin, 1989) was also used in my case study for the physical self-worth assessment. According to Marsh and Cheng (2012), Physical Self-Description Questionnaire (PSDQ) developed by Marsh, Richards, Johnson, Roche, and Tremayne (1994) and Richards Physical Self-Concept

Scale (Richards, 1988) are similar to the PSPP and were designed for the same purposes. However, Sabiston, Whitehead, and Eklund (2012) argue that the PSPP and PSDQ have been considered to be the best measurements for the physical self. I decided to use the PSPP since Sonstroem et al. (1994) expanded the EXSEM to include additional self-perceptions based on the PSPP (Sabiston, et al., 2012). This means that the conceptualization of the PSPP is incorporated into the EXSEM (Sonstroem & Morgan, 1989).

The PSPP (Fox and Corbin, 1989) consists of five 6-item scales of sport competence, physical condition, body attractiveness, strength, and physical self-worth. The PSPP was designed to reflect the advances developed by Harter (1985) and Shavelson et al. (1976) in identifying the physical self as an important construct to measure in its own right and to reflect the multidimensional hierarchical nature of the physical self (Marsh & Cheng, 2012). Each PSPP item consists of two opposite descriptions e.g. “Some people are very competitive” but “Others are not quite so competitive”. Participants have to choose a description that best fits and then indicate whether the description is sort of true or really true for them.

In addition to the perceived competence of the physical domains, the PSPP includes perceived importance profile (PIP). Its importance exists in that if a person considers a sports domain as unimportant, then that domain score is unlikely to have a negative/positive effect on overall physical self-esteem. Fox (1990) argues that measuring perceived importance alongside self-perception is necessary to improve understanding of the mechanisms of self-esteem development. Four physical domains (sport competence, sport conditioning, body attractiveness, and physical strength) include two items of importance ratings. Every item may be scored between 1 and 4 which means that for one domain the importance ranges from 2 to 8. Fox (1990) recommends that scores of 5 and above (out of 8) may be considered within the selection criteria and the discrepancy score might be calculated as follows:

- Identify which of the four subdomains are rated 5 or above.
- Select the PSPP score (maximum score =24) for each of these domains and divide this by three.
- Subtract the related perceived importance score.

A higher negative discrepancy score would be hypothesized to associate to lower physical and global self-esteem (Fox, 1990).

4.2.2.3.3 Self-esteem

In the literature review (section 2.5.3) I have critically discussed the construction of self-esteem and found that a multidimensional and hierarchical construct of self-esteem is now widely accepted (Sabiston, et al., 2012). Therefore, when investigating in-detail change of self-esteem, it has been suggested that a researcher uses multidimensional measurements (Harter, 1999). Subsequently unidimensional measures were excluded from the study.

However, Harter's theory of competence suggests that people are motivated where their competence can be demonstrated particularly in the areas where they feel a perception of personal control (Biddle & Mutrie, 2008). This means that those who perceive themselves as highly competent in physical activity would be more likely to participate in such activities. Also, Harter (1999) claims that if a person values one domain as important and achieves a high score that this is better than to value another domain as important and achieve a low score. Furthermore, Buckworth et al. (2013) argue that controlled research designs based on a multidimensional and hierarchical model of self-esteem contributes to the knowledge regarding the effects of physical activity on self-esteem in various populations. This is particularly important taking into account that exercises in general and martial arts in particular may improve global self-esteem through intellectual and physical self-worth improvement (Ryan, 2008). Using the Rosenberg's Self-Esteem Inventory or Tennessee Self-Concept Scale (or any another unidimensional measurement) this effect will not be possible to identify. In contrast, Self-Perception Profile for College Students (SPPCS) and Adult Self-Perception Profile (ASPP) include different self-esteem domains (e.g. physical, social, athletic, social, and intellectual) and therefore these two measurements seemed to be appropriate measurements for the purposes of this study.

Since the questions in the ASPP are not relevant to the undergraduate students (Neemann & Harter, 1986) the SPPCS was used for the four undergraduate students and the ASPP (Messer & Harter, 1986) for the postgraduate student who is closer to

the adults scale items. These two scales follow a multidimensional approach of self-esteem which has found to be preferred in the literature, particularly when exercise interventions are present (Buckworth, et al., 2013). Reliability of the SPPCS and ASPP ranged between 0.76-0.92 and 0.63-0.92, respectively. The SPPC and ASSP items consists of two opposite descriptions e.g. “Some adults like the way they are leading their lives” but “Other adults don’t like the way they are leading their lives”. Participants have to choose the description that best fits and then indicate whether the description is somewhat true or very true for them, using a 4-point Likert scale.

Although the SPPC and ASSP consist of 12 and 11 domains respectively, I included only those that have been related in previous studies somehow to martial arts, namely; social acceptance (Jones, et al., 2006; Lantz, 2002), intellectual ability (Ryan, 2008) and morality (Lantz, 2002). To my knowledge previous research has not reported any link between martial arts practice and scholar achievement, parental relationship, humour, job competence and so forth.

Similarly to the PSPP, the SPPC and ASSP include the importance ratings with the same system of scoring. Two items of importance ratings are within each domain of the SPPCS and only one item for every domain in the ASPP. However, a discrepancy score has been recommended to be calculated differently as follows:

Discrepancy score = Mean of the Importance ratings minus the mean of the competence scores.

According to the authors of these two questionnaires, only the domains that score a value of “4” are considered to be very important to effect one’s global self-esteem (Messer & Harter, 1986; Neemann & Harter, 1986).

4.2.2.3.4 Social validation

Social validation has been defined as a “supplemental method that facilitates involvement of multiple participants in the evaluation process” (Busse, Kratochwill, & Elliott, 1995, p. 273). Social validation is designed to ensure that programmes consider views from the participants of programmes (Barker, et al., 2013) and to determine the satisfaction with a programme. This is particularly important in

intervention studies as it is alleged that the intervention programmes may be related to the social context (Storey & Horner, 1991). Sport psychologists and sport scientists need to document the effectiveness of their work to enhance accountability of the practitioners in applied settings (Anderson, Miles, Mahoney, & Robinson, 2002; Anderson, Miles, Robinson, & Mahoney, 2004). Social validation techniques have the potential to enhance this accountability in these settings through the data that may be gained (Page & Thelwell, 2013). Storey and Horner (1991) argue that data gained from the social validation assessment can help research and applied work. Participants and/or significant others report positive and negative fragments of the programme and subsequently programmes' runners may modify the programmes as suggested. Social validation addresses one of the three issues: social significance of goals, social appropriateness of the procedures, and social importance of the programme effects related to whether the participants are satisfied with the results (Page & Thelwell, 2013). Therefore, when feedback is provided people may be interested to become involved in such physical activities since they have a clearer picture about the programme. They can better judge whether they are going to enjoy practicing or not. Since people with VI are not as involved in physical activity as their sighted peers (Atkinson & Black, 2006; Kozub & Oh, 2004) social validation appears to be particularly important for this study because of the above mentioned reasons.

Furthermore, social validation results are particularly important in case studies. In a 30-year review of the 40 single case-studies in the field of sport psychology, it was found that 26 studies (65%) conducted a formal social validity evaluation with participants (Martin, Thompson, & Regher, 2004). In Barker et al.'s (2013) review on case-studies in sport psychology only 14 out of 66 studies did not include any evidence of social validation procedures which means that 78.78% of the studies used some form of social validation questions.

Therefore, when each participant completed the 10- week karate programme, he/she answered a social validation questionnaire. To get in-depth answers such as recommended by Page and Thelwell (2013) and following Mellalieu, Hanton, and Thomas (2009), additional open-ended questions were utilized in an attempt to better understand the participants' perceived underlying reasons for the relative success or

failure of the karate programme. These audio-recorded interviews were semi-structured and focused on the three themes about the programme namely participants' opinions about the goals of the programme; participants' opinions about the programme procedure; and participants' opinions about the results produced by the programme procedure (Martin, et al., 2004).

Therefore, study participants responded on a 1 (not at all) to 7 (very much so) Likert scale to the following four questions:

- (a) How important to you is improvement in exercise self-efficacy, physical-self-worth, and global self-esteem?
- (b) Do you consider any of these improvements that have occurred to be significant?
- (c) How satisfied were you with the programme?
- (d) Has the procedure proved useful to you?

4.2.2.3.5 Summary of measurements

For the purposes of the first study and to assess the effect of martial arts practice on the EXSEM components, that is presented in this chapter, I used five measurements; EXSE, PSPP, SPPCS, ASPP, and social validation questions. However, EXSE, PSPP, and social validation were answered by all five participants. Four participants (P1-P4) did not answer SPPCS or ASPP, whereas P5 answered ASPP instead of SPPCS as he was a postgraduate student aged 40 years in addition to all other questionnaires. All five participants answered physical self-worth and self-esteem scales in addition to rating their importance.

4.2.2.4 Procedures

Ethical approval for the study was granted by the ethics committee in the Moray House School of Education at The University of Edinburgh. I met the participants individually and administered the informed consent process (appendix D). After receiving the informed consent sheets the participants answered the three questionnaires several times (using large print or verbally (Shapiro, et al., 2008))

until the stability of dependent variables was found. Each participant completed the questionnaires during this stage within 12 weeks. The time between two subsequent measures varied between 2 and 6 weeks. When the stability (more details are available in data analysis) was found for each participant, he/she completed a Physical Activity Readiness Questionnaire (PAR-Q) which preceded the karate programme. After four, six, eight, and ten weeks of the programme the participants completed the questionnaires following the multiple baseline approach AB and, according to Barker, McCarthy, Jones, and Moran (2011), represents one of the key methods for determining intervention effectiveness in applied research.

For the purposes of this study, I used a non-concurrent multidimensional staggered baseline approach developed by Watson and Workman (1981) who claimed that this approach provides flexibility and has been considered as practical. According to Harvey, May, and Kennedy (2004) the non-concurrent designs could be arranged for different semesters and when the participants become available (Fox & Boliek, 2012; Watson & Workman, 1981; Wong, 2010). The flexibility was important for this study because the participants were university students at different levels and from different universities. Furthermore, some of participants were not from the UK and had to return to their own country at different times. Not all participants therefore were available at the same time. In this study, two participants started the intervention for 10 weeks, while the other three started their 10-week karate programme during the intervention at different times. Therefore, the participants did not complete the sessions together ($n = 5$) and were training as a group for only one and a half weeks.

4.2.2.5 Karate programme

The participants attended a 'traditional' karate programme twice a week (60 minutes per session) for 10 weeks. Although no concrete evidence has shown the necessary time for self-esteem improvement, previous literature has focused mainly on interventions that lasted between eight to twelve weeks (Linxuan, 2011; Taylor-Piliae, et al., 2006; Yang, 1997; Yeh, et al., 2013). For example, Yeh et al. (2011) found that 12-weeks of martial arts practice were enough to improve exercise self-efficacy in people with heart failure ($M = 67$ years, $SD = 11$ years). Similarly, 11-

weeks of taekwondo practice were enough to improve global self-esteem in children (Yang, 1997) whereas 8-weeks of a taekwondo programme improved physical self-worth and global self-esteem in college women students ($M = 22.61$ years) (Finkenberg, 1990). Therefore, I considered ten weeks as an appropriate period to show changes in self-esteem that could be associated with undertaking my karate programme.

Following the example of others (Graham, 2007; Reeves, Nicholls, & McKenna, 2011; Shearer, Mellelieu, Shearer, & Roderique-davies, 2009), all sessions were led by me (as a researcher) due to my karate qualifications as an instructor (3rd Dan holder and 3rd level instructor) and previous experience in teaching people with VI karate (two years of experience) in addition to the experience I gained through the pilot study. Similar to the pilot study, I was researcher and instructor for the purposes of this study, and I have been aware of potential bias of the results that could appear. The sessions were held privately in one of the sports halls at the University of Edinburgh. During the training period all participants completed basic blocks, stances, punches, kicks and the first Kata (Heian Shodan which is a form of predetermined series of movements that are performed against imaginary opponents (Doria et al., 2009). Although all participants had to complete Heian Shodan, teaching methodology was differentiated to accommodate the different visual abilities among participants. All sessions included physical training in addition to karate principles developed by Funakoshi and Nakasone (2003). However, the aims of the overall programme were similar to all participants but the teaching method was developed for and applied to each participant differently. This means that I had to adapt teaching methods individually according to the abilities of every participant since none of them could see similarly to the others. Designing the programme and the methods were flexible and in agreement with the participants' improvement in the karate skills. More details of the sessions' context are available in appendix E.

4.2.2.6 Data analysis

The two standard deviation (SD) band method was used to compare exercise self-efficacy, PSPP, SPPCS, and ASPP scores during the baseline. The 2-SD band method (Shewhart, 1931) is known as statistical process control charts (SPC) (Orme

& Cox, 2001). In the literature, a process is said to be in control if the distribution of the data appears to be statistically stable over time (Wild & Seber, 2000). SPC charts consists of three elements; a central line which usually represents the mean (CL), upper and lower control limit (UCL and LCL respectively) corresponding to $\pm 2SD$ from the CL and are drawn as dashed lines parallel to the CL. The most appropriate chart for this study was X-mR-Chart (moving range chart) since it has been determined as useful in human single case experiments when the number of data points is relatively small (usually between 2-10) and when individual variability is high (Ottenbacher, 1986). If the process under study is producing normally distributed data points then 95% of the data points will fall within 2 SDs. A significant change is considered to have occurred if two successive data points are outside the 2-SD control limits (Orme & Cox, 2001; Sideridis & Greenwood, 1996). The 2-SD was previously used in the field of exercise psychology multiple case research conducted by McEwen, Polatajko, Huijbregts, and Ryan (2010). Poots and Woodcock (2012) described X-mR-Charts as a powerful analytical tool for detecting special causes of variation in a measure of quality. The following presents an explanation of calculating the CL, UCL, and LCL:

- a- Mean
- b- Range: Compute the moving range (R) of each two adjacent data points. The moving range is the absolute difference between a data point and the previous one. There will be one fewer range than data points.
- c- Compute the mean range which is calculated by $\overline{R} = \sum R / n-1$; where n represents a number of data points.
- d- The estimate of the population standard deviation: $\sigma_x = \overline{R} / 1.1284$, where 1.1284 is a constant value
- e- Compute the UCL and LCL as it has been explained above.

Although a lag-one autocorrelation has been mentioned in the literature as a measurement of stability (Barker, et al., 2011), it was excluded from data analysis because limited reports show the way of autocorrelation analysing. This leads to a more critical problem knowing that autocorrelation significantly varies by technique (CENTER-MT, ALLISON-MT, and GORSUCH) (Parker & Brossart, 2003).

Although McEwen et al. (2010) reported using the lag-one autocorrelation they failed to report the way they computed it and the used technique. Considering that the lag-one autocorrelation calculation is limited in the literature, Neuman and McCormic (1995) claim the autocorrelation analysis as the main challenge in the analysis of single-subject data. Therefore, statistical analysis from data analysing at the baseline was excluded.

The analysis included visual inspection, graphical approach, and the use of the two standard deviation (SD) band method to compare all the questionnaires' scores during baseline to intervention. Visual analysis is a traditional basic method to analyse single-case research data and comprises visually inspecting data and judging whether a programme had produced a significant change in the dependent variable (Kinugasa, Cerin, & Hooper, 2004). Visual analysis and graphical approaches are common in the literature as a method for identifying the effect of intervention (Parker & Brossart, 2003) including exercise-related studies (e.g. Barker & Jones, 2008; Jordet, 2005; Mellalieu, et al., 2009). Despite the limitation that visual inspection has (subjectivity) (Barker, et al., 2011), Barker et al. (2013) reviewed 66 single case studies in the period between 1997 and 2012 and found that all of them employed both visual analysis and graphical procedure compared to 16 studies that used statistical analysis.

4.2.3 Results

This study aimed to investigate the effect of karate practice on self-esteem in young adults with VI through a multiple baseline approach. After five pre-programme measurements, every participant achieved stability in almost all studied variables as table 4.4 shows. Some of the main components of the EXSEM however, were not within the 2SD but because the scores trend was reducing (opposite to the purposes of the programme) or the scores were very low I introduced the karate programme (Hrycaiko & Martin, 1996; Mellalieu, et al., 2009; Morgan & Morgan, 2009). Therefore, after examining the participants five times they were qualified to start a 10-week karate programme.

Table 4.4. Stability measurements of the variables during baseline assessment.

	P1					P2					P3					P4					P5				
Variable/Score	UCL			LCL		UCL		LCL			UCL		LCL			UCL		LCL			UCL		LCL		
EXSE	17.8			16.7		33.34		5.65			91.87		84.12			100.3		99.2			37.05		35.94		
	20	17.5	11.25	18.75	18.75	38.75	23.75	12.5	15	7.5	90	90	95	83.75	81.25	98.75	100	100	100	100	36.25	40	35	36.25	35
PSW	1.67			1.67		2.2		2.06			1.71		1.56			3.16		2.56			1.24		1.09		
						2.33	2	2.5	1.67	2.17	1.67	1.67	1.67	1.67	1.5	3	2.83	3.5	2.67	2.33	1.17	1.33	1.17	1.17	1
Sport competition	1.86			1.72		1.36		1.36			2.24		1.95			3.86		3.27			1		1		
	1.67	1.83	1.83	1.83	1.83	1.33	1.5	1.5	1.17	1.33	2.33	2	2.17	2	2	3.83	3.5	3.67	3.67	3.17					

Table 4.4. Stability measurements of the variables during baseline assessment.

	P1					P2					P3					P4					P5				
Sport condition	1.74			1.45		2.54		2.39			2.55		2.11			2.98		2.54			1.68		1.24		
	1.83	1.5	1.5	1.67	1.5	2.5	2.33	2.67	2.5	2.33	2.67	2.5	2.17	2.17	2.17	3	2.83	2.83	2.67	2.5	1.67	1.67	1.5	1.33	1.17
Body attractiveness	2.41			2.11		1.65		1.35			2		2			2.64		2.35			1		1		
	2	2.33	2.33	2.33	2.33	1.67	1.67	1.5	1.33	1.33						2.17	2.5	2.83	2.5	2.5					
Physical strength	1.87			1.72		3.16		3.16			1.83		1.83			2.2		2.05			2.1		2.1		
	1.67	2.17	2	1.67	1.5	3	3.33	3.5	3	3						2.17	2	2.33	2.17	2	2	2	2.33	2.17	2
GSE	2.66			2.07		2.7		2.7			2.39		1.8			3.91		3.61			1.31		1.02		
	2.83	2.17	2.5	2.17	2.17	2.67	2.67	2.67	2.83	2.67	2.5	2	2	2.17	1.83	3.83	3.83	3.83	3.83	3.5	1.33	1.17	1.17	1.17	1

Table 4.4. Stability measurements of the variables during baseline assessment.

	P1					P2					P3					P4					P5				
Social self	2.32			1.87		2.87		2.42			2.37		1.92			3.82		3.37			1		1		
	2.5	2	2	2	2	3	2.5	3	2.25	2.5	2.5	2	2	2.25	2	3.75	3.75	4	3.25	3.25					
Intellectual self	2.51			2.28		3		3			2.78		2.11			3.12		2.67			1.21		0.98		
	2.5	2.25	2.75	2.25	2.25						2.75	2.75	2.5	2.25	2	2.5	3.5	3	2.5	3	1.25	1.25	1	1	1
Moral self	3.52			3.07		3.72		3.27			2.95		2.95			4.1		2.99			4		3.2		
	3.75	3.25	3.25	3	3.25	3.5	4	3.5	3.5	3	3	2.75	3	3	3	2.5	3.75	4	3.75	3.75	3	3.25	4	4	4
Athletic self	2.01			1.78		1.31		1.09			2.92		2.47			3.55		3.55			1.21		0.98		
	1.75	2	2	1.75	2	1.25	1.25	1.25	1.25	1	3	3	2.75	2.25	2.5	3.75	3.5	3.75	3.5	3.25	1.25	1.25	1	1	1
Note: EXSE = exercise self-efficacy, PSW = physical self-worth, GSE= global self-esteem																									

Table 4.4 clearly demonstrates that all five participants achieved stability during the baseline assessment at the end of the fifth assessment. Those who had not had scores between the UCL and LCL were achieving lower scores as the assessment was moving forward. For example, P1 had social and moral self scores higher than the UCL only on the first assessment and after that it became relatively stable. P4 was in a similar position to P1 regarding social self-esteem but the last two scores were lower than the LCL. In addition, P2 had a higher first score on the EXSE, which dramatically reduced until it achieved the score of 7.5/100 at the fifth assessment. His body attractiveness in the first two scores was higher than the UCL but then it started reducing in the last three assessments, which became even lower than the LCL indicating that the scores were opposite to the expected results of the karate programme intervention. P5 had very interesting scores during the baseline assessment; he had very low scores in almost all domains that were measured. Although P5 had higher scores than the UCL, as the assessment time was moving forward he was achieving lower scores, which were low, so he had a minimal achievable score on the physical self-worth assessment, global self-esteem assessment, intellectual self, and athletic self. Therefore, regardless of the participants' achieved scores that were not within the border of the UCL, I decided to introduce the intervention karate programme for every participant at the time when they had low baseline assessment scores.

Each participant's rating of the variables was graphed to provide a visual inspection of the effectiveness of the programme. Following the EXSEM the figures below (figures 4.1.a to 4.1.e) show the five repeat baseline questionnaire measurements across a 3-month period, the four repeat questionnaire measurements during the 10-week karate programme, and a 3-month follow up questionnaire for each individual participant. A graphical approach is presented through the mean score of the baseline and the 10-week karate programme is also presented in the figures (4.1.a to 4.1.e) below.

Importantly, the importance rating scores for the physical self-worth and self-esteem components were calculated. However, most of these scores for all five participants in the baseline period were lower than 5 and 4 for the physical self-worth and self-

esteem components respectively. Although most of the importance scores improved during the programme I excluded them from the study results to avoid a potential confusion. For instance, the importance of sport competition domain for P3 was low in the baseline and therefore was assumed to be unable to affect the physical self-worth (Fox, 1990) and consequently there was no need to calculate the discrepancy score for this domain. After completing the karate programme, the importance increased to above “5” and the discrepancy score became -0.6. Since Fox suggested that a higher negative discrepancy score would be associated to lower physical and global self-esteem and it would not be clear whether the discrepancy score of this domain improved or not and in which way it has impacted upon the global self-esteem score.

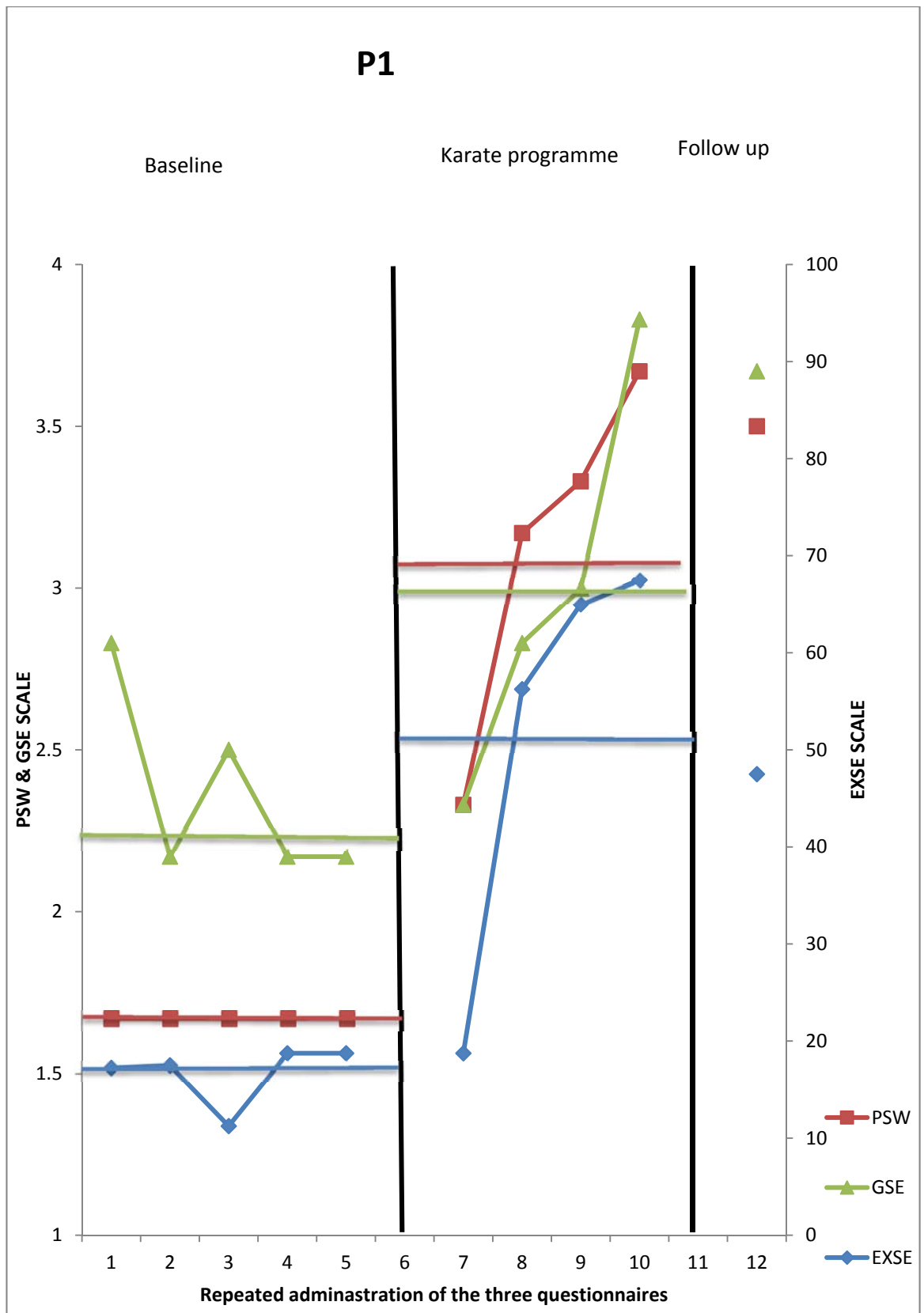


Figure 4.1.a: Data from participant 1 (P1).
 PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

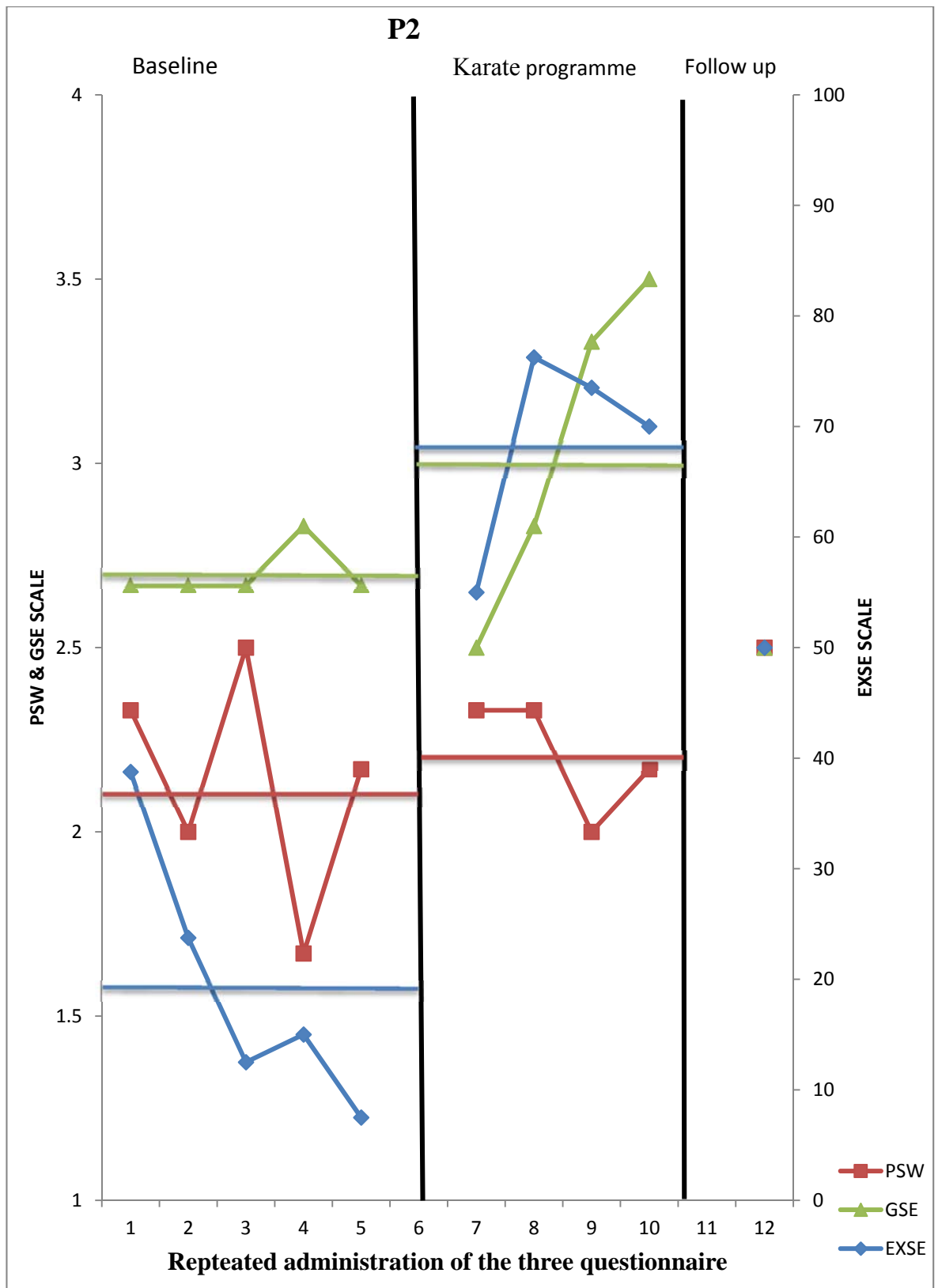


Figure 4.1.b: Data from participant 2 (P2).
 PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

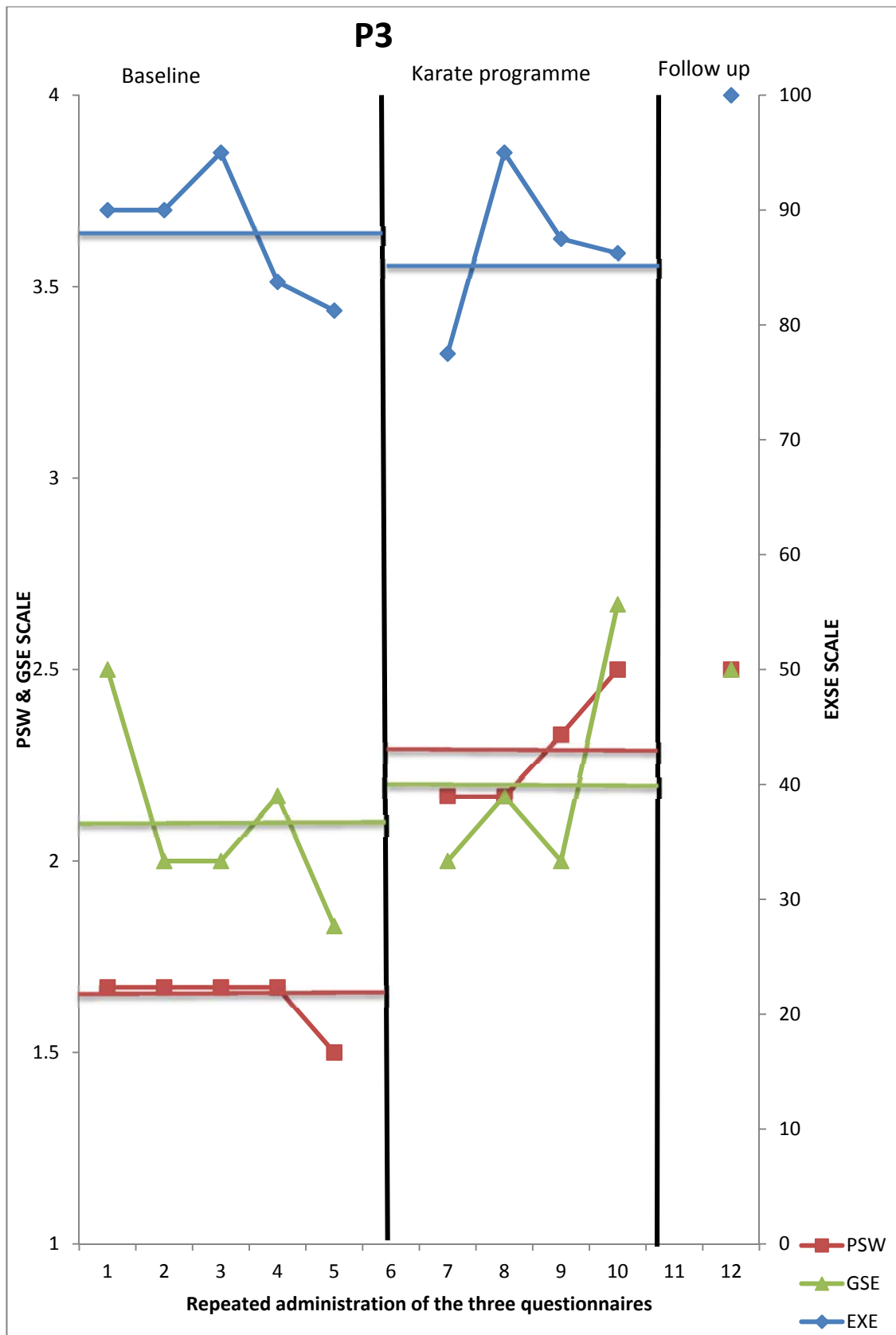


Figure 4.1.c: Data from participant 3 (P3).
 PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

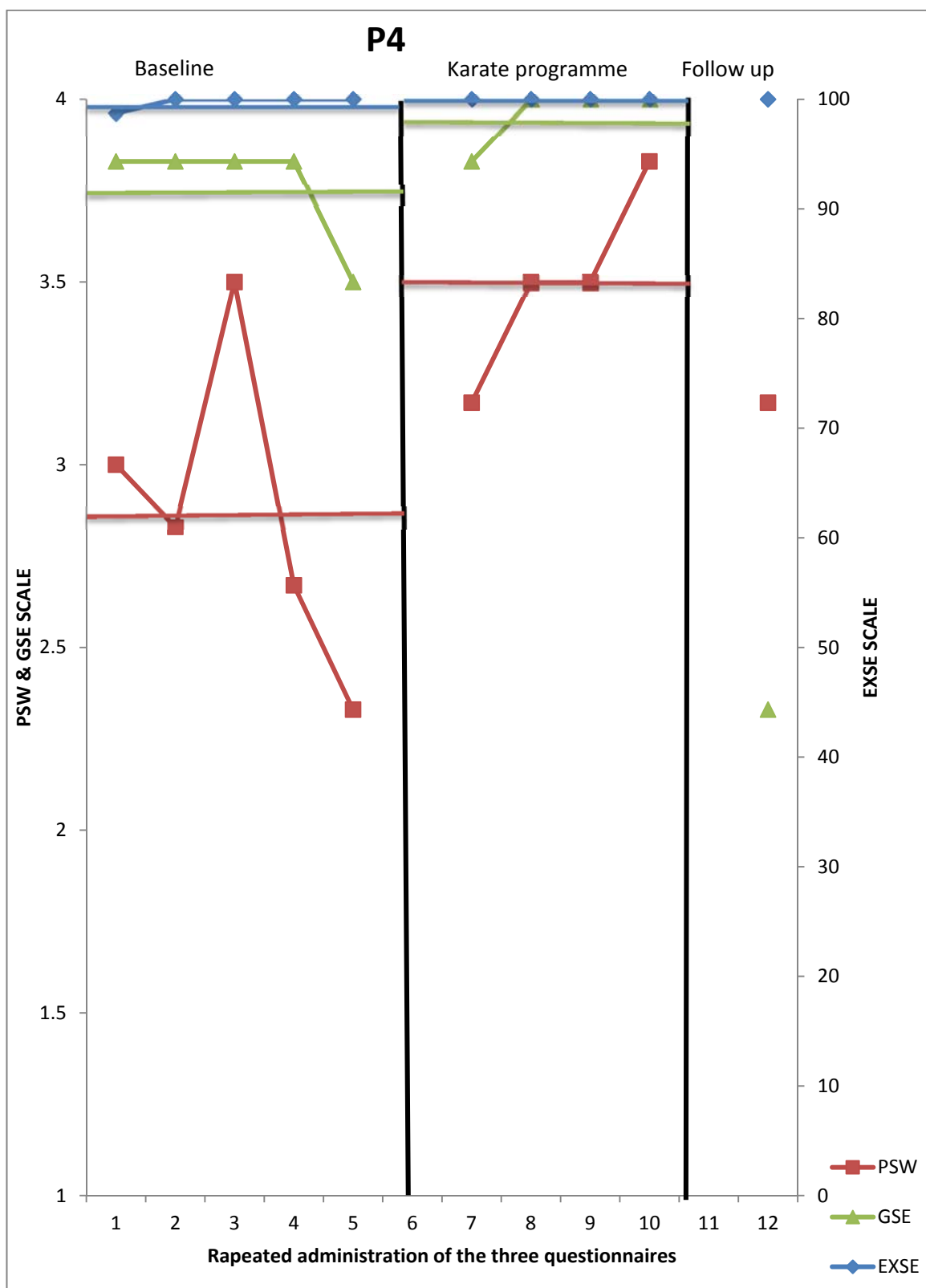


Figure 4.1.d: Data from participant 4 (P4).
 PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

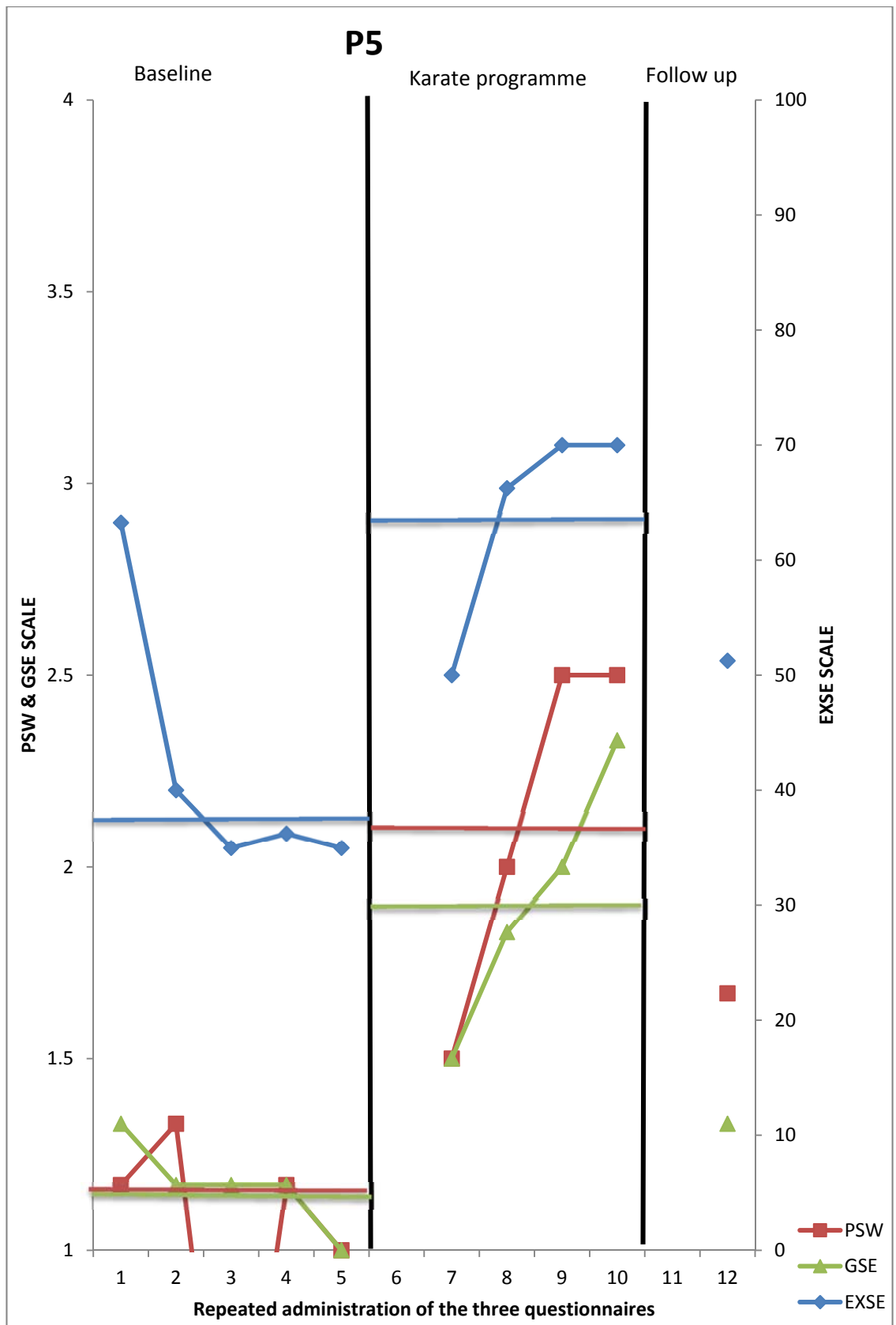


Figure 4.1.e: Data from participant 5 (P5).
 PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

From the previous five figures (4.1.a - 4.1.e), which demonstrate the effect of karate intervention programme on the three main components of the EXSEM (exercise self-efficacy, physical self-worth, and global self-esteem), it clearly appears that all of these domains were improved during the karate intervention programme, except exercise self-efficacy for the P3 and P4. P3 and P4 however, have already had high exercise self-efficacy scores during the baseline assessment. Moreover, P1, P3, and P5 succeeded to achieve their 3-month follow up scores either higher than the baseline mean scores or higher than the karate intervention programme mean score. However, P2 and P4 achieved global self-esteem scores in the 3-month follow up assessment lower than their baseline mean scores. To determine the reasons for these results, namely those in the 3-month follow up results for P2 and P4, and to investigate the effect of karate practice on the other physical and self-esteem domains further explanation is needed.

Table 4.5 shows the exercise self-efficacy mean score in the baseline, during the karate programme period, and the follow up measurements. Although it shows the same results as the figures 4.1.a - 4.1.e comparing all results in the tables will hopefully provide the reader with a better visual understanding of the results. In tables 4.6 and 4.7 mean scores of the physical self-worth domains and global self-esteem domains for the baseline, during the karate programme, and follow up scores are presented respectively.

Table 4.5. Exercise self-efficacy mean, physical self-worth, and global self-esteem scores during baseline, the karate programme, and a 3-month follow-up measurement for each participant (N = 5).

Participant	P1			P2			P3			P4			P5		
Mean	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up
Exercise self-efficacy	17.25	51.87	47.5	19.5	68.68	50	88	86.56	100	99.75	100	100	36.5	64.06	51.25
Physical self-worth	1.67	3.13	3.5	2.13	2.21	2.5	1.63	2.29	2.5	2.86	3.5	3.17	1.16	2.13	1.67
Global self-esteem	2.37	2.99	3.67	2.7	3.04	2.5	2.1	2.21	2.5	3.76	3.96	2.33	1.16	1.92	1.33
<i>Note:</i> P1= Participant 1, P2= Participant 2 and so forth. M1= Mean score at the baseline, M2= Mean score during the karate programme															

Table 4.6. Physical self-perception profile domains mean scores during both baseline and the karate programme for each participant (N=5).

Variable/Participant	P1			P2			P3			P4			P5		
	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up
Sport competition	1.79	2.2	3.33	1.36	1.83	2.17	2.1	2.37	2.17	3.56	3.75	3.67	1	2.04	1.83
Sport condition	1.6	3.41	2.5	2.46	2.54	3.17	2.33	2.75	2.67	2.76	2.83	3.33	1.46	2.38	1.67
Body attractiveness	2.26	2.79	2.83	1.5	1.92	1.5	2	2.42	2.83	2.5	2.96	2.93	1	1.08	1.17
Physical strength	1.8	2.92	3.67	3.16	2.83	3.33	1.83	2.13	2.5	2.13	2.96	3	2.1	2.67	2.67
<i>Note:</i> P1= Participant 1, P2= Participant 2 and so forth. M1= Mean score at the baseline, M2= Mean score during the karate programme															

Since in the previous table (table 4.5) all participants improved their physical self-worth during the karate intervention programme it is not surprising that physical self-domains were also improved during the karate intervention programme as table 4.6 shows. The participants' perceptions about their physical abilities were established during the karate intervention programme and this positively reflected on the 3-month follow up scores in the physical self-worth domains that were mainly higher than the baseline mean scores or higher than the karate programme mean scores. One interesting score from table 4.6 exists; physical strength at the 3-month follow up score for P2. While physical strength of the P2 reduced during the karate intervention programme it became higher at the 3-month follow up assessment, indicating that during the karate intervention programme P2 faced temporary challenges that changed his perception about his physical strength.

Table 4.7. Self-esteem discrepancy domains mean scores at baseline and during the karate programme for each participant (N=5).

Variable/Participant	P1			P2			P3			P4			P5		
	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up	M1	M2	Follow up
Social	2.1	2.81	3	2.65	3.13	2.81	2.15	2.5	2	3.6	3.75	3	1	1.56	1.25
Intellectual	2.4	2.69	3	3	3.5	3	2.45	2.5	2.5	2.9	3.38	2.5	1.1	1.38	1.5
Morality	3.3	3.25	3.25	3.5	3.75	3.5	2.95	3	3.5	3.55	3.94	2	3.65	4	3.75
Athletic	1.9	2.81	2.75	1.2	1.88	1.88	2.7	2.75	2.75	3.55	3.63	3.25	1.1	2.31	2.75
<p><i>Note:</i> P1= Participant 1, P2= Participant 2 and so forth.</p> <p>M1= Mean score at the baseline, M2= Mean score during the karate programme</p> <p>X= The score on the Importance rating was below “4” so the value was not calculated</p>															

As table 4.7 shows, during the karate intervention programme all five participants improved their social, intellectual, athletic, and morality scores (except P1) which had a positive impact on their global self-esteem scores (table 4.5). However, P4 who had a lower global self-esteem score at the 3-month follow up score had all non-physical self domains lower as well; indicating their negative effect on his global self-esteem. Although P2 had a global self-esteem score at the 3-month follow up score lower than the baseline mean score, his subdomains at the 3-month follow up scores were not lower than the baseline mean scores. This result reflects that there could be other self domains that were not measured within the study but that affected his global self-esteem at the 3-month follow up assessment.

4.2.4 Social validation

The participants classified their answers into three categories based on the questionnaire (exercise self-efficacy, physical self-esteem, and global self-esteem). Mean (M) and standard deviations (SD) were calculated across all five participants for the social validation measures, shown for each question below. None of the participants scored under 4 in any of the questions and all scores ranged from 4 to 7 as the table 4.8 shows.

Table 4.8. Social validation scores for each participant (N= 5).

Social validation questions/participant		P1	P2	P3	P4	P5
How important to you is improvement in:	EXSE?	4.5	4	5	6	5
	PSW?	5	5	6	6	5
	GSE?	6	6	7	7	6
Do you consider any of these improvements that have occurred to be significant?	EXSE	5	5.5	4	6	6
	PSW	7	5	5	7	5
	GSE	5	5	4	7	5
How satisfied were you with the programme?		6.5	6	6	6	7
Has the procedure proved useful to you?		6	5	6	7	6
<i>Note:</i> Scale for each score the three variables (exercise self-efficacy, physical self-worth, and global self-esteem) ranged between 1 (not at all) and 7 (very much so)						

1- “How important to you is improvement in exercise self-efficacy, physical-self-worth, and global self-esteem?”

- Exercise self-efficacy: $M=4.9$, $SD= 0.74$
- Physical self-worth: $M=5.4$, $SD= 0.54$
- Global self-esteem: $M= 6.4$, $SD= 0.54$

These results show that the participants considered global self-esteem as the most important domains among the EXSEM components that needed to be improved.

2- “Do you consider any of these improvements that have occurred to be significant?”

- Exercise self-efficacy: $M=5.3$, $SD= 0.83$
- Physical self-worth: $M=5.8$, $SD= 1.09$
- Global self-esteem: $M= 5.25$, $SD= 1.25$

Supporting the results from the questionnaire, the participants perceived that the improvement in the main EXSEM components occurred. However, global self-esteem that was considered to be the most important aspect met the lowest perception of improvement.

3- “How satisfied were you with the programme?”

- $M= 6.3$, $SD= 0.44$

4- “Has the procedure proved useful to you?”

- $M= 6$, $SD= 0.7$

The last two questions examined how the programme and the overall procedure of teaching were perceived by the participants. Although the scores indicate that the participants were satisfied with the programme, a criticism appeared through interviews (statements for the interviews are presented below). The interviews aimed

to identify positive and negative aspects of the programme. This feedback may potentially provide critical feedback for those who would like to introduce similar programmes with similar aims to young adults with VI. From conducted interviews the following two themes existed:

a. Positive and negative aspects of the programme:

Two participants were not satisfied with the period of intervention and considered it too short a time period. P1 said that she was not very satisfied with the programme stating:

“I was satisfied with it [programme] a lot but the reason for 0.5 is like I feel we could train more, like had more sessions. But everything else is really good” (P1).

P3 also shared P1’s opinion, stating:

“I think it was nice. I just enjoyed it. I felt it was a bit short and there wasn’t too many people. I think I would improve more if you made it longer evidently and make it with more people but I do think it was quite nice” (P3).

Similarly, P2 enjoyed being involved with other people giving the programme a score of 6, stating:

“I liked being with other people doing sports together. I don’t do it very often so that was fun. So the kind of social aspects that was good” (P2).

Participants therefore, clearly indicated that they wanted to do more martial arts sessions with their peers.

P4 and P5, who assessed the programme as 6 and 7 respectively, also enjoyed doing the programme and this was associated with the pedagogical approach that was followed as well as the focus on philosophical and theoretical aspects of karate:

“The conversations between the trainings were very, very important and very stimulating and very enjoyable for me. The theories, the aspects of karate, what do I think about this or that and that. It was interesting to experience that, to talk about that. I enjoyed that” (P4).

P1 and P2 also felt happy that they tried new skills which reflected in their perspective of their improvement, conveyed in the following quote by P1:

“The very clear outcome is that I found I can be good in sports which I haven’t have these taught before. It’s a new skill, it’s the first time I feel confident about sports” (P1).

Whilst P3 stated that he became more confident about his body and physical strength, P4 employed some of the skills in his personal life, stating:

“I use the technique of relaxation, when I am stressed I am using the technique you told us about, the breathing, controlling it, trying to observe what’s happening, don’t react right a way and if you decide to go, you don’t go back just keep going forward. I kind of translated not only to the physical but for my personal life I start something” (P4).

b. Karate programme for people with VI:

All participants agreed that such programmes are needed for people with VI for different reasons. For example:

“I think they would benefit from it physically and psychologically” (P5).

More precise were the other four participants who focused on social interaction. For instance:

“It improves your fitness, provides a new skill to you, also I loved to meet new people, new friends, like who train with you. I think it is a good thing” (P1).

P3 highlighted more philosophical point, as follows:

“Martial arts in general, self-defence is really important just to feel confident with yourself. If you are suffering it makes you more comfortable, I mean like suffering in a real life. Not just with physical pain but like you know perceptions in life. I do believe that martial arts has influence in that, teaching about frustration, about how to overcome all situations and to be more calm” (P3).

P4 agreed with P3 that karate programmes may improve not only confidence but also self-esteem for the following reason:

“On a physical level I believed back being able to do hand-stands. I never expected to do the number of push-ups I did. Honestly I beat my high school record. If I can do that I could come to the class and...just every time leaving the class going back home I felt my self-esteem the global self-esteem was already so high. I felt very, very good going back home. Sometimes I felt really tired coming in but going back the sense of achievement and global self-esteem was just amazing. I felt like the world is not above me but below me. I felt like I am controlling the world” (P4).

Importantly, P2 considered that such programmes increase social relationships, stating:

“You feel more comfortable because you are with people where you can be interrelating more instead of doing alone when you are visually impaired” (P2).

4.2.5 Discussion

This study aimed to investigate the effect of martial arts practice on self-esteem in young adults with VI following the EXSEM. Results of this study suggest that karate practice may improve exercise self-efficacy in young adults with VI (table 4.5).

Three of the participants (P1, P2, and P5) improved their exercise self-efficacy during and immediately after the 10-week karate programme, whereas the other two participants (P3 and P4) had high exercise self-efficacy during the baseline and this may account for their apparent lack of improvement. This outcome is in agreement with previous findings that martial arts practice improves exercise self-efficacy in sighted college students (Caldwell, et al., 2009). They found that a 15-week tai chi programme had a significant effect on exercise self-efficacy among college students (mean age = 21 years). Caldwell, Harrison, Adams, and Triplett (2009) reported that the mean increased from 57.6 to 63.2 (out of 84) ($p = .0005$), which indicates that participants perceived themselves as being more able to control their movements mindfully at the end of the intervention than at the beginning.

Interestingly, tai chi programmes (physically very different but from a psychological perspective very similar to my karate programme) for 11 and 12 weeks have also had a positive impact on the exercise self-efficacy among older sighted adults (Dechamps, et al., 2009; Taylor-Piliae, et al., 2006; Taylor-Piliae, et al., 2012) and those with heart failure (Yeh, et al., 2011; Yeh, et al., 2013).

The present study findings also support previous studies that found martial arts programmes improved physical self-worth in sighted adults (Li, et al., 2002; Linxuan, 2011). For instance, Li, Harmet, Chaumeton, Duncan, and Dincan (2002) found that tai chi exercise for six months improved physical self-worth and global self-esteem. They used the PSPP for the physical self-worth measurement and found an improvement in all sub-domains, namely: attractive body, physical strength, and physical conditioning. I found an improvement in all PSPP sub-domains for the study

participants (except physical strength for P2) which resulted in a higher score of the physical self-worth across all five participants (table 4.5). Li et al.'s (2002) and my findings propose a hierarchical structure of the PSPP sub-domains which seems to result in improved physical self-worth. Therefore, this result seems to support a multidimensional construct of the physical self-worth.

However, another recent study on sighted people with brain injury, with 10 participants in an experimental group (mean age = 44.5 years) and 10 participants in a control group (mean age = 46.2 years), did not find significant improvement in physical self-worth (Blake & Batson, 2009). Although they did find an improvement in the experimental group it was not significant. Blake and Batson (2009) identified two limitations of the study that probably affected their results: a small sample size and the short duration of the programme (once a week for 8 weeks). In contrast to their study, in this study I followed a multiple baseline approach rather than their randomized controlled trial study design. A multiple baseline approach has been described as a viable alternative to the randomized controlled trials which uses smaller sample sizes which are still statistically rigorous (Hawkins, et al., 2007).

Almost all study participants improved their social acceptance, intellectual ability, and morality (except for P1 in morality). During the baseline data collection only P4 had high social acceptance scores. However, after the karate intervention programme all participants (including P4) appear to have developed their social self-esteem. Conversely, intellectual ability and morality were different at baseline across the participants but all participants (except P1 in morality) showed an improvement in these two domains.

Social relationships were previously identified as one of the main reasons for people practising martial arts (Jones, et al., 2006; Lantz, 2002) and it has been claimed that martial arts practice improves social acceptance (Winkle & Ozmun, 2001). In an earlier study (Finkenberg, 1990), social self-esteem was found to be improved due to taekwondo training among sighted college women students. Although a single case study was employed in this study, in which participants trained as a group ($n = 5$) for one and a half weeks and not the whole 10 weeks, it seems that the short period was enough to improve social self-esteem of P1.

However, the social validation findings show that the participants expressed a desire for a longer karate programme. Further, participants in the current study reported that they felt accepted by the instructor and were happy that they were invited to participate in the karate programme.

In this study, intellectual development across four participants was observed (table 4.7). The programme was based on traditional karate which has physical movements as well as theoretical and philosophical principles (Funakoshi & Nakasone, 2003). Additionally, this traditional training approach that I adopted had intellectual components that may lead to the improvement of the global self-esteem of martial artists (Ryan, 2008).

Moral development was also found to be improved across three participants (P1 scored lower morality for 0.05). This outcome from my study is partially in agreement with Lantz's (2002) study in which he conducted interviews with parents of sighted children who were practicing martial arts. The parents stated that their children improved moral standards due to the martial arts practice. In the present study, I had a similar outcome, possibly due to the pedagogy based on Funakoshi and Nakasone's (2003) traditional karate. The participants in my study were taught karate principles, mainly those developed by Funakoshi and Nakasone (2003) and links were explained on how to employ and integrate some of them into real life situations beyond our karate programme. Karate sessions begin and end with rei (respect), there is no first strike in karate, karate stands on the side of justice, and karate goes beyond the dojo are just some examples of the principles.

During the sessions in this study I discussed these principles with the participants and encouraged brief yet critical discussion about their meanings. Interview data indicates that they found this a positive experience. For example, one participant stressed the impact of these constructive discussions, stating:

"The conversations between the trainings were very very important and very stimulating and very enjoyable for me. The theories, the aspects of karate, what do I think about this or that and that. It was interesting to experience that, to talk about that. I enjoyed that" (P4).

Compared to this study, others have reported different outcomes from martial arts intervention studies on global self-esteem across different population groups. The studies that did not find a significant improvement in global self-esteem either included a small sample size (Anthony, 2005; Conant, et al., 2008), focused on the other primary aims (e.g. cognitive, affective, and physical self-regulation) rather than global self-esteem (Lakes & Hoyt, 2004), or did not clarify the methodology sufficiently (Foster, 1997). In contrast to Schmidt's (1988) findings, the present study is in agreement with others who found a significant improvement in global self-esteem due to martial arts training (Brown, et al., 1995; Finkenberg, 1990; Lee, et al., 2007; Lee, et al., 2010; Lee, 2006; Li, et al., 2002; Mustian, et al., 2004). These studies showed that martial arts training for periods of between eight and twenty four weeks can improve global self-esteem in sighted people. According to Winkle and Ozmun (2001) global self-esteem improvement may occur because students experience success which they see as their own achievement (a form of self-regulation (Moote, Williams, & Sproule, 2013)) without comparing themselves to others reflecting a mastery approach (Gray, et al., 2009). Further, global self-esteem improvement seems to be a result of not only the hierarchical development of self domains (Marsh & Cheng, 2012) in the EXSEM, but also in the SPPCS and SPPA.

However, what can be seen from tables 4.6 and 4.7, the improvement in self-esteem domains were not as high as in the physical self-worth domains which suggests that martial arts are more related to physical improvement than the other life domains.

Regarding the 3-month follow up results, the above figures showed that the scores on the three main domains (exercise self-efficacy, physical self-worth, and global self-esteem) either remained near the mean of the karate programme scores or decreased (figures 4.1.a - 4.1.e). This reduction however, was not as low as the mean scores within the baseline except global self-esteem for the P4. This study appears to be the first study that investigated the effect of martial arts programme on the EXSEM components during a 10-week intervention programme. However, Romero-Zurita et al. (2012) explored the effect of tai chi detraining on mental health in women with fibromyalgia. Twenty three women ($n = 23$) who completed the post intervention and detraining Rosenberg's Self-esteem Scale had lower scores compared to the posttest

scores but higher than the baseline scores. Three of my study participants had higher self-esteem in the follow up scores than in the baseline. Two participants (P2 and P4) who had a higher score of the global self-esteem in the baseline and during karate programme achieved a lower score in the follow up test. This “none-expected” result for P2 could be because he had a significant change in his life at the period of answering the follow-up questionnaire since he moved to another country for the first time.

Moreover, the follow-up results for these two participants in the self-esteem scores were lower or close to those achieved in the baseline scores. In contrast, the other three participants were close to the post-programme scores. All five participants maintained their score levels in the follow-up measurements. This result therefore suggests that martial arts have a “long-term” effect on physical domains in young adults with VI. Once the participants entered the period of detraining, this improvement in the physical components seems to have a limited contribution to global self-esteem. Binder (1999) claimed that martial arts practice has a long term effect on psychosocial improvement but he failed to determine whether the benefits remain within detraining. In addition, the results showed that a detraining period does not affect physical self-worth as it does social self, intellectual self, and moral self. Therefore, these non-physical scores that were low in two participants, P2 and P4, appeared to have a more significant effect on their global self-esteem than physical domains. This result suggests that during the detraining period physical self-worth is not important so it may impact global self-esteem.

Nevertheless, results that can be generalized for all five participants for the 3-month follow up stage did not exist in the present study. However, what we can conclude from analysing the results of the figures and the tables above, the improvement in the physical scores was mostly higher than the post-intervention scores and higher than the baseline scores.

4.2.6 Implications, applications, and limitations

Results of this study suggest that young adults with VI have relatively low global self-esteem, supporting previously reported results by Papadopoulos et al. (2013),

and therefore future research should be expanded regarding self-esteem of young adults with VI. In addition, for the first time an exercise programme has been introduced to people (children, adolescents, and/or adults) with VI investigating its effect on self-esteem. Researchers in the field of martial arts and/or adapted physical activity therefore could apply different exercise forms to people with VI, particularly following the EXSEM which has not been previously applied among individuals with VI. Detraining is another new facet of this study, as previous research failed to investigate the effect of detraining on self-esteem in people with VI. Moreover, detraining in the context of martial arts is also limited as to date only one study (Romero-Zurita, et al., 2012) explored the effect of martial arts detraining on mental health.

Most importantly, future research should focus on the factors that lead to improved exercise self-efficacy and self-esteem and this would probably involve in-depth interviews. Based on the findings of the present study it is still unknown whether global self-esteem was improved due to the EXSEM or SPPCS and SPPA domains. Therefore, research on the mechanisms that improve self-efficacy and also the relationships between the EXSEM and non-physical self-esteem domains is warranted.

However, what this study failed to examine is a statistical analysis of the results, which would provide more objective results (Barker, et al., 2011), because of the small sample size. Moreover, being the researcher and instructor is another limitation of this study that has been expanded in the section 4.1.2.4. Researchers need to try and avoid being in a position regarding this issue to avoid bias. Lastly, VI diagnosis of the participants provided by an ophthalmologist would assure that I would have detailed information about VI of the recruited participants and would enable me to plan a karate programme earlier.

4.2.7 Chapter summary

This chapter started with a pilot study that aimed to determine whether I could use and manage self-esteem questionnaires with people who were VI and to provide me with a better understanding of the Scottish culture and environment so that I could

effectively conduct my first study. Two adolescents with VI were involved in the pilot study and the result showed that the participants understood the questions. In addition, qualitative data that were gathered through interviews supported my ability to conduct interviews with people in Scotland who were VI.

After that, the main study was presented in detail. The main study in this chapter aimed to investigate the effect of a martial arts programme on self-esteem in young adults with VI through the EXSEM and to explore whether the change in self-esteem may remain during a 3-month period of detraining. In addition, this study was assumed to provide a general description of self-esteem levels of young adults with VI since the literature about this topic is limited. Following a multiple baseline case study approach, namely a non-concurrent multiple baseline design, five young adults (aged 19-40 years) were recruited. Four undergraduate participants completed each of the EXSE, PSPP, SPPCS, before the karate intervention was introduced. One postgraduate student however answered the ASPP instead of the SPPCS in addition to all other questionnaires. When the 2-SD band analysis showed that a participant achieved relatively stable scores in the above questionnaires, a 10-week karate programme intervention was introduced. This process was applied for all five participants. Upon completing the karate intervention programme, every participant answered the social validation questionnaire in addition to a semi-structured interview. Three months after the karate programme intervention, all five participants answered the same questionnaires that were answered during the baseline assessment which was considered as a 3-month follow up assessment.

Learning basic karate skills and karate philosophy showed to be an effective method for self-esteem improvement in young adults with VI. Visual inspection and graphical approach analysis showed that mean scores of all five participants improved in almost all domains of the EXSEM and almost all domains of physical self-worth. However, due to a large number of the variables in the study with five participants, it would be very ambitious to expect improvement in all domains. Regarding non-physical domains, only one participant did not improve the morality mean score after completing the karate intervention programme.

Except P2 and P4, the other three participants achieved 3-month follow up scores in global self-esteem higher than the baseline mean scores, although it was lower than the global self-esteem mean score after the karate programme intervention. Non-physical scores at the 3-month follow up assessment caused lower global self-esteem for P4 whereas P2 had an external factor that influenced his self-esteem but was not identified in this study. Most of the other physical domains, non-physical domains, and exercise self-efficacy remained higher at the 3-month follow up assessment compared to the baseline assessment.

However, neither this study nor previous research explored the mechanisms that lead to self-esteem improvement in martial artists. This thesis aims to investigate all conditions that need to be met in order to get the improvement in self-esteem in people with VI and therefore the next chapter will hopefully identify these mechanisms through interviewing advanced martial artists with VI.

Chapter 5: Martial Arts Mechanisms for Self-Esteem Improvement from the Martial Artists' with VI Perspective

Chapter overview

This chapter aims to outline the mechanisms for self-esteem improvement according to the perspective of the martial artists with VI. I will start chapter 5 with the aims of the study and the details of the study methodology, providing a critical justification for following a narrative approach. At the end of the methodology section, I will demonstrate a step by step guide to the data analysis procedure. This will be followed by presenting the profiles of the martial artists that were interviewed in the study. I will also critically discuss the themes of each of the following nodes respectively; a) impact of being VI on self-esteem, b) models of disability, c) sport experience, d) benefits of martial arts practice, and e) mechanisms for self-esteem improvement. As the aim of this study is to identify the mechanisms for self-esteem improvement, its themes of social and intellectual self-esteem will be critically discussed. The chapter will be completed with a summary of the results, presenting a conceptual map of the mechanisms for self-esteem improvement in martial artists with VI.

5.1 Aims

In the previous chapter (chapter 4) five young adults with VI participated in a 10-week karate programme. Visual inspection analysis showed an improvement in global self-esteem across all five participants. The improvement in exercise self-efficacy was found in three participants and most of the physical self-perception was found in all five participants while one participant did not improve on only one domain of the physical self-worth. What this seems to identify is that we may be in a position to know one segment of the psychosocial outcomes of martial arts practice on people with VI; improved global self-esteem. However, researchers in sport and exercise psychology still need to answer which processes produce which results, for which participants, and under which circumstances (Coalter, 2007) and therefore not only are the outcomes of martial arts practice important but also the process of how to achieve the desired outcomes becomes equally important.

Previous studies (Conant, et al., 2008; Graham, 2007; Martin, 2002) found that martial arts practice may signify an improvement in self-esteem across various age groups of people with impairments. However, the research failed to identify mechanisms and reasons for the improvement in self-esteem and its domains, physical self-worth, and exercise self-efficacy, not only in people with VI but within any other population group. This means it is still difficult to identify why martial arts practice leads to such improvements in self-esteem in people with VI, although the results appeared to support the EXSEM during the karate programme but not in the detraining period. To get a clearer picture, we can use an example from computer science to examine the psychosocial outcomes that we can compare with this study using the “black box testing” approach (Coalter, 2007). The black box approach indicates the researchers focus only on the output of a programme whilst ignoring the programme’s content (figure 5.1).

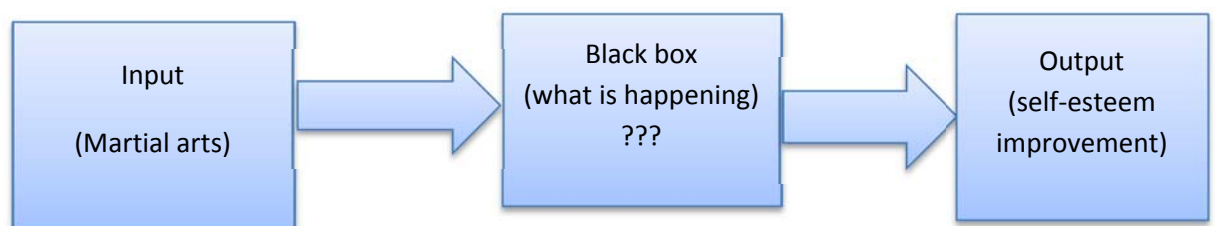


Figure 5.1: Illustration of the black box approach

Therefore, the main purpose of this study, which is reported in this chapter, is to explore self-esteem improvement in people with VI with particular reference to the influence of martial arts. Additionally, it will explore what is happening in the black box of the martial arts training through interviewing people with VI who have been practicing martial arts. In other words, this study aims to investigate whether martial arts practice impacted on the lives of people with VI and to explore the reasons/mechanisms for their self-reported self-esteem improvement from their experience in martial arts. This will hopefully fill the gap in the literature since previous studies appear to have failed to address these processes. Interestingly, Biddle and Mutrie (2008) stated that researchers agree that the underlying mechanism related to the positive effects from exercise (including martial arts) on mental health (including self-esteem) are not yet known. While neuroscience researchers are trying to explain this theme, this study aims to present a psychosocial

explanation based on individual experience. This study will therefore answer the second research question:

- What are the mechanisms/reasons for self-reported self-esteem improvement of martial artists with VI?

5.2 Methods

5.2.1 Experimental design

The aim of this study was to identify the experiences of people with VI who were practicing martial arts in order to explore the process and mechanisms that led or may lead to improved global self-esteem. In contrast to study one of this thesis that investigated the effect of martial arts practice on global self-esteem in young adults with VI (variable A effects variable B), when a researcher investigates behaviours, strategies, underlying factors, and perceived reasons for effectiveness of a programme, the researcher should follow a qualitative research method (Strauss & Corbin, 1990).

However, qualitative research is a field of inquiry in its own right that encompasses a large number of different approaches and perspectives (Denzin & Lincoln, 2005) which have different but overlapping ontological, epistemological, theoretical, and methodological emphases (Smith, 2004). Because of differences and similarities among the approaches, I shall clarify the most appropriate qualitative approaches I identified that suited the aims of my qualitative studies. This clarification will include both a detailed analysis of the approaches used and the reasons for excluding other qualitative approaches.

With respect to all qualitative approaches, in his book, Creswell (2013) presented the difference among five qualitative approaches; narrative research, phenomenology, grounded theory, ethnography, and case study. The following table (table 5.1) demonstrates the characteristics of these five qualitative approaches.

Table 5.1 Characteristics of Five Qualitative Approaches.

Characteristics	Narrative research	Phenomenology	Grounded theory	Ethnography	Case study
Focus	Exploring the life of an individual	Understanding the essence of the experience	Developing a theory grounded in data	Describing and interpreting a culture-sharing group	Developing an in-depth description and analysis of a case or multiple cases
Type of problem best suited for design	Needing to tell stories of individual experiences	Needing to describe the essence of a lived phenomenon	Grounding a theory in the views of participants	Describing and interpreting the shared patterns of culture of a group	Providing an in-depth understanding of a case or cases
Unit of Analysis	Studying one or more individuals	Studying several individuals who have shared the experience of a phenomenon	Studying a process, an action, or an interaction involving many individuals	Studying a group that shares the same culture	Studying an event, a programme, an activity, or more than one individual
Data collection forms	Using primarily interviews and documents	Using primarily interviews with individuals, although documents, observations, and art may also be considered	Using primarily interviews with 20-60 individuals	Using primarily observations and interviews, but perhaps collecting other sources during extended time in field	Using multiple sources, such as interviews, observations, documents, and artifacts
<i>Note:</i> Only four characteristics have been included in the table: focus, type of problem best suited for design, unit of analysis, and data collection forms. Taken from Creswell (2013)					

Comparing the aims of my study and table 5.1, it is clear that grounded theory, ethnography, and case study design were not appropriate approaches for the aims of this thesis as the study did not aim to develop a theory by which I could explain the world or to explore shared cultural patterns of groups. Similarly, case study design

was not one of the appropriate approaches since the purpose was not solely to understand any participant in depth.

Furthermore, I needed to have basic information about the time prior to their participation in martial arts and to explore how and why the change occurred. This was particularly important since narrative research usually contains turning points (Creswell, 2013) and the second study could identify whether martial arts participation have been considered as one of those turning points (whether or not it caused a significant change in their lives). The advantage of using a narrative approach, particularly for this study, is that narratives (based on remembered stories) are an important domain for the social construction of self in which aspects of self are maintained over time (Miller, 1994). A context which consists of experience through the link between past, present, and future requires a narrative approach (James, Brown, & Holloway, 2013) dealing mainly with one phase of life (Stake, 1995). Consequently, in order to answer the research question I followed a narrative approach.

5.2.1.1 What is narrative approach?

A narrative approach may be defined as a specific type of qualitative research in which narrative is understood as a series of chronologically connected events (Czarniawska, 2004). However, Jovchelovitch and Bauer (2000) state that stories in narrative are not necessary taking a chronological dimension but can also consist of coherent stories in which the plot consists of a number of smaller tales integrated together. Indeed, a narrative approach is considered as a useful approach to understand people's experiences (Papathomas & Lavalley, 2012). The advantage of using this approach exists with individuals who experience a phenomenon (in this case martial arts) over a period of time (Basit, 2010). The narrative approach collects stories from participants about their lived experiences in which participants may shed light on how they see themselves (Creswell, 2013). Through a narrative approach, people may define who they were, who they are, and who they may be in the future (Crossley, 2000). Within this approach, the participants expressed the story of an event that they had experienced, which has been named as autobiographical study (Creswell, 2013; James, et al., 2013). According to Sellnow (2010) a narrative

approach must fulfil the following four requirements: a) offer at least two events, b) be organized by time (text might be organized chronically or offer flashbacks and flash forwards which are somehow related temporally to each other), c) depict a relationship between earlier and later events, d) present a unified story (the story has a beginning and an end).

As an interdisciplinary approach, narrative research has been used in different research fields (medicine, law, psychology, sociology, sport psychology and so forth). Since my thesis is about psychosocial changes in exercise settings, the use of a narrative approach in exercise psychology will be addressed.

5.2.1.2 Narrative research in sport and exercise psychology

Although some attention has been given to narrative approaches in the field of sport and exercise psychology (Smith & Sparkes, 2009), I decided to follow a particularly narrative approach (short autobiography) as it appeared to be an appropriate approach that could be used in this study to ensure a new knowledge in the field. Smith and Sparkes (2009) consider narrative approaches as a provocative way in which the reader is drawn into the experience, shared narrative knowledge, and multiple ways of knowing as potential strengths of narratives. According to Smith (2010), using narrative research in exercise psychology may have the potential ability to expose the temporal, emotional, and contextual quality of lives and relationships, instigate personal and social changes, generate a strong sense of the lived body, and illuminate the subjective worlds of participants. In their recent research, Carless and Douglas (2013) suggested six interrelated ways through which narrative approaches can contribute to research in exercise psychology. Outlined below are the four ways that relate to my second study:

- a- Narrative methods prioritize individuals' experiences through telling concrete stories that have occurred during the participants' lives and does not focus on construct, opinions, and perceptions. In this phase, participants did not only talk about their opinion for improved self-esteem but also about their lived experience.

- b- Narrative research focuses on the meaning of experiences, which helps in understanding one's own self. Listening to the participants' life narratives helped me to understand some of decisions they made in their lives.
- c- Narrative research conveys how a particular life domain develops over time. In the interviews, participants pointed towards a particular life domain which impacted upon their global self-esteem.
- d- Narrative approaches investigate personal and social experiences. As it has been mentioned in this thesis, social domain is one of the factors that influences global self-esteem level and therefore it was expected that the narratives of the participants could identify the importance of social self-esteem on global self-esteem and namely in the context of martial arts practice.

In the field of sport and exercise psychology, discovery and relational narrative has been used in Carless and Douglas (2012) study which aimed to explore success stories among elite and Olympic athletes to establish if other ways of conceptualizing success are possible for high-achieving elite sports men and women. They conducted in depth interviews with elite athletes ($n = 21$) aged between 18 and 44 years. The interviews consisted of biographical, historical, and cultural context for each participant's life experiences.

By contrast, Carless and Douglas (2013) utilized the narrative approach to explore the process and consequences of identity among young elite athletes with a particular focus on the influence of elite sports culture. The authors recruited two participants ($n = 2$) and conducted a short life story using a conversational approach. Similarly, Papathomas and Lavalley (2012) recruited one participant ($n = 1$) for the purpose of their study that aimed to expand an understanding of eating disorders in sports. The authors justified using a narrative approach due to its benefits in understanding experience and identity construction. They conducted a series of six unstructured life history interviews over 12 months, such as has been recommended by James, Brown, and Holloway (2013).

In addition, Carless and Douglas (2008) aimed to explore the ways in which narrative, identity, and mental health relate to one another within the context of sport,

exercise and severe mental illness. The authors observed participants ($n = 11$) and conducted 16 semi-structured interviews. Participants in the study talked about their experience in and of sport, memorable exercise-related moments, previous sport participation, and any ways in which sport had affected them. Semi-structured interviews were also used by Theberge (2008) in his study that explored the accounts of elite level athletes of the relationship between participants' sport participation and their health. Twenty ($n = 20$) recruited participants expressed their experiences in working with medical practitioners, their experience of injury and rehabilitation, and their understanding of the relation between sport participation and health. Moreover, Hanton, Cropley, Neil, Mellalieu, and Miles (2007) aimed to explore how and why the intensity and direction of anxiety-related symptoms altered from one incident to the next. They also conducted semi-structured interviews with six ($n = 6$) participants.

Consequently, in agreement with most of the previous study in the field of exercise psychology, and considering the aims of this study, to investigate the mechanisms for self-esteem improvement in people with VI, a narrative approach that focuses on the real consequences for long term mental health, such as self-esteem, was selected.

5.2.2 Participants

As it has been presented in the previous section, studies usually used between one participant (Papathomas & Lavalley, 2012) and 21 participants (Carless & Douglas, 2012). Ritchie, Lewis, and Elam (2003) state that qualitative samples in general should be small because there becomes a point where little new evidence will exist, statements about incidence and prevalence are not the concern of qualitative research, and the type of information that qualitative research yield is rich in detail. Since the literature examination did not answer how many participants is enough for narrative qualitative studies, except that they should include a small number of participants (Creswell, 2013), the discussion needs to be expanded to qualitative research.

Saturation is a strategy used to identify how many participants is enough to complete the research. According to Morse (1995) saturation has been defined as data

adequacy and operationalized as gathering data until no new information is obtained. In addition, Guest, Bunce, and Johnson (2006) concluded that for studies with a high level of homogeneity (individuals who have the same characteristics) among the population, six interviews may be sufficient to enable researchers to develop meaningful themes and useful interpretations. When recruiting participants for a study, a researcher should be aware that the sample must be large enough to assure that most of the important perceptions are uncovered (Mason, 2010). In his study Mason found that PhD students either do not understand the concept of saturation, thereby use a comparatively large number of interviews, or they do understand the concept of saturation but find easier to submit their theses based on larger samples than needed.

5.2.2.1 Inclusion and exclusion criteria

The participants had to be martial artists since this study aimed to identify the mechanisms/reasons for self-reported self-esteem improvement of martial artists with VI. Potential participants reported their sight condition and if this condition supported my definition of the VI (section 2.2.2.3), the interview was conducted. Similarly to the first study (chapter 4), participants with cognitive and acquired VI were recruited. Although previous studies did not identify whether the difference in self-esteem between cognitive VI and acquired VI exists, Wright (2005) in his book described how taekwondo practice helped him to psychologically face retinitis pigmentosa (RP), acquired VI, which gradually led to his blindness. Consequently, I decided to select both groups, those with cognitive VI and acquired VI in order to identify their perceptions of the causes for the improvement in their global self-esteem. It was also important that participants had to be practicing martial arts as being VI. Martial artists with a multiple disability were also within the inclusion criteria. However, martial artists who were deaf-blind were excluded since I was not familiar with sign language nor on body signing. All participants were adults. Children were excluded as adults had greater life experiences than children and as well as that adults may have experienced several exercise settings (sports) and consequently they would be able to compare between these settings. I proposed that these experiences would enable them to clearly point whether anything special and

unique existed within martial arts practice. Male and female martial artists pass the same experience of the VI and therefore both genders were included. For the aims of this study, I contacted the participants who spoke English, Arabic, and ex-Yugoslavian languages since I have the required skills to communicate with people using these “three” languages.

5.2.2.2 Procedure of recruiting the participants

Due to a very limited population, I had to contact martial artists from various martial arts styles (table 5.2) to be involved in this study. This decision was made since martial arts styles may be practiced for different purposes. For example, karate, taekwondo, and judo may be practiced for the purposes of competition not necessarily seeking self-improvement. By contrast, aikido does not include competitions and therefore people who are practicing aikido may practice for different reasons than those who are training judo which is usually competitive martial arts that could lead to different training methods and interpretation of the reasons for self-esteem improvement. Their perceptions of experience thereby may be different.

Table 5.2. Number of the recruited participants in each martial arts style.

Martial arts style	Karate	Krav Maga	Aikido	Judo	Ninpo ninjitsu	Taekwondo	Iaido
Number of martial artists	5	2	1	1	1	1	1
<i>Note:</i> Only the main martial arts style was counted within this table although some of the martial artists were practicing more than one style							

Furthermore, researchers face many challenges recruiting elite participants (Carless & Douglas, 2012; Pensgaard & Duda, 2002). Unfortunately, I also had similar experiences in recruiting participants; such as finding and contacting the participants and getting them to agree to be involved in the study. Importantly, I can claim that most of the recruited participants for this study were elite martial artists since 7 of them have been graded above black belt and one participant represented his country in an international championship. My criteria is supported by Katic, Blazevic,

Krstulovic, and Rosanda (2005) who considered karateka who achieved brown belt (one belt below black belt) as an elite martial artist.

Contacting participants began at the end of April 2013 and lasted until the end of October 2013. I contacted the British Paralympic Judo Federation, the department of karate for people with disability in the WKF, British Karate Federation, World Seido Karate, and Algerian Judo Federation. I also contacted martial artists from the UK, Canada, US, Australia, Bosnia and Hercegovina, and Egypt, via social media (Facebook and twitter), and two sighted world recognized karate experts who I know personally. Judo clubs in Edinburgh, London, and Kent were also contacted. I also contacted people who were working in the field of sport or disability in the UK, USA, Finland, Turkey and Egypt. Following the example of Stirling and Kerr (2013) after conducting the interview, each participant was asked if he/she could suggest others who could be potential participants for the study. The participants were contacted either by email or phone and were informed about the aims of the research. Every participant or organization who did not reply was contacted after two weeks from the day of the first contact. Table (5.3) shows the number of people with VI, their instructors, and associations/clubs that include people with VI I contacted.

Table 5.3. The number of contacted organizations and individuals.

Contacted individuals (organizations)	Negative responses from organizations	Negative responses from individuals	Positive responses from organizations	Positive responses from individuals
	6	38	7	12
Total contacts	44		19	
Total number or recruited participants	12 martial artists			
Note: This number shows organizations and individuals who replied (positive response) and those who did not reply or replied only once and stopped contact without any reason (negative response)				

As the narrative studies in the field of sport and exercise psychology recruited different numbers of participants (1 - 21) it appears that 12 participants for the

purposes of this study is enough, particularly taking into account a specific population group that meet inclusion and exclusion criteria.

5.2.3 Data collection

From the presented research in section 5.2.1.1 it appears that in the field of exercise psychology, narrative approaches largely depend on interview method for data collection (Brustand, 2008). Moreover, Smith (2010) supports the idea that interviews are the main method to generate data adding that narratives should not be highly structured interviews but only conducted in open-ended format. However, it is not clear what highly structured interviews mean. In addition, the structure of interview (structured, semi-structured, unstructured) is a different concept to the type of questions (open-ended or yes/no questions). Open-ended questions may be used in both semi-structured interviews (Kurkova, Valkova, & Scheetz, 2011; Vallee & Bloom, 2005) and structured interviews (Thelwell, Weston, Greenlees, & Hutchings, 2008). Moreover, semi-structured interviews is the most common type that has been found in the literature which seek to achieve a specific aim of exploring experiences (James, et al., 2013). However, studies that used semi-structured interviews across different approaches represent a strong argument that no rule exists regarding which type of interviews is a must for any one approach.

Consequently, for the purpose of this study I used interviews as a data collection method since it was claimed that individual experiences (which varies) across the participants are usually shared through one's words (Ajjawi & Higgs, 2007). Furthermore, this study aimed to gain a rich and broad understanding of the background of participants' experience in martial arts and whether they gained any benefits by being in martial arts and consequently semi-structured interviews were utilized. This type of interviews might be pre-planned, but also based on the interviewer responses further ideas formulated into the existing questions. In this type of interview format, the interviews begin with a set of questions but spend considerable time encouraging participants to provide more information and details (Harris & Brown, 2010). Although it has been recommended to use unstructured interviews in narratives (James, et al., 2013; Smith, 2010) I used semi-structured interviews (Carless & Douglas, 2008; Hanton, et al., 2007; Theberge, 2008; Thomas,

Lane, & Kingston, 2011). The reason for this was the findings of Cassell and Symon (2011) which stated that a good qualitative research is the one that fits the purpose. They aimed to define what is good qualitative research conducting 22 in-depth interviews with journal editors, directors of European work psychology based institutes, British Psychological Society Officials, UK-based practitioners, and directors of UK-based MSc Work Psychology programmes. Their findings show that the main characteristic of good qualitative research is to fit the purpose of the study. This means that good qualitative researches are those that use methods (data collection methods, sample, data analysis and so forth) that are the most appropriate for the achievement of the purpose. Moreover, in the semi-structured interviews that I used, all questions asked were related to and sought to meet the aims of the study (Basit, 2010). Therefore, I did not have to conduct long interviews with non-useful information which were not related to the purposes of the study. As previous research suggested (Atkinson, 1998; Papathomas & Lavalley, 2012) most of the questions were open-ended. However, similarly to Cortazzi, Jin, Wall, and Cavendish (2001) and following Riessman's (2008) recommendation, I used direct and clear questions that could be expanded upon by the participants.

5.2.4 Procedure

After receiving ethical approval for conducting interviews, information and consent sheets were distributed to the participants who were interested in participating in the study (appendix F). Twelve verbal interviews were one-on-one and in face-to-face conditions or via Skype with those who lived outside the UK. Participants who did not have experience in using Skype were contacted by phone. The disadvantages of the interviews by Skype or by phone have been identified by James et al. (2013) and Basit (2010); a difficulty in recording and a lack of access to the facial expression and body language. However, I did not experience these challenges in recording the interviews. In addition, no alternative way existed to contact participants who lived outside the UK and the themes that were addressed in the interviews were not significantly based on body language. Also, Holt (2010) argues that phone interviews are an effective method and researchers should not view them as a second-best option to face-to-face interviews since Stephens (2007) found phone interviews as a

productive and valid methodological tool. Irvine, Drew, and Sainsbury (2010) conducted a small number of semi-structured interviews face-to-face and telephone interview on the topic of mental health and employment. The authors concluded that no noticeable differences between the quantity, nature, and depth of responses exist. All these interviews were audio recorded in an agreement with ethical policy of the Moray House School of Education.

The main themes that were addressed in the interviews of the second study were guided by Kurkova, Valkova, and Scheetz (2011) and based on my experience in martial arts. The interviews focused on the following five domains: a) demographic information; b) the development of VI; c) social interaction (e.g., “What are the challenges that sighted people face when dealing with people who are VI?”); d) martial arts experience (e.g., “If you had an opportunity to point to one element that significantly influenced you from martial arts practice what would it be?”); and e) plans for the future (e.g., “Where do you see yourself after 10 years?”). Appendix G provides more questions guidelines that were used with the participants.

These themes have been chosen initially and in line with the aims of the study and the literature. As it has been discussed in the literature review, social domain has been identified as an important segment of lives of people with VI, therefore, I had to ask martial arts questions and those that were related to the social domain of self-esteem.

Carless and Douglas (2013) prefer an interviewer with experience in elite sport when interviewing elite athletes, which helps in improving openness and trust in the interviewer-interviewee relationship. They argue that such interviewers are able to not only offer empathy and show solidarity, but also to challenge and provoke interviewees seeking alternative explanations for their stories. This means that as someone with experience in martial arts, I was considered to be able to identify whether a participant expressed his thoughts clearly and if not, I could encourage him/her using words (terms, phrases) that evoke the ideas and thereby enable him/her to continue. At the same time, I could identify whether there is a relationship between a reason and a benefit, and challenged the participants to provide more information to advocate their ideas. Following Collins and Nicolson (2002) at the

end of the interview each participant was asked if there is anything that could be added to the conversation (related to the purposes of the study) that not been covered by my questions.

5.2.5 Data analysis

Although Theberge (2008) failed to mention his method of data analysis approach, all narrative studies that have been presented above used a thematic approach for data analysis in at least one of the stages of the research process (Carless & Douglas, 2008, 2012, 2013; Douglas & Carless, 2009; Hanton, et al., 2007; Papathomas & Lavalley, 2012). The use of this approach is in line with Riessman (2008) who suggests that the thematic analysis is the most significant approach for narrative analysis. She argues that this type of analysis emphasizes the content of a text, what is said rather than how it is said. In this process, a researcher looks for themes using the meaning of words, phrases and larger units of discourse (Gee, 1991). This is a useful approach when a researcher includes more than one participant since common thematic elements across participants exist (Riessman, 2008). The advantage of this type of analysis is that themes that arise from the story provide a more detailed discussion of the meaning of the story (Huber & Whelan, 1999).

After transcribing data, the first stage of data analysis included reading each interview several times until the understanding of the context was achieved. This stage was followed by a thematic analysis (Riessman, 2008) to identify themes and instances of paradigmatic categories. Thematic analysis is a method for identifying, analysing, and reporting themes within data (Braun & Clarke, 2006). This approach of data analysis answers what has been said in narratives. Although thematic analysis is widely used in research (Bryman, 2012) insufficient detail is often given to reporting the process of analysis (Attride-Stirling, 2001). For the purposes of this study I followed an inductive approach utilising six guidelines for doing thematic analysis developed by Braun and Clarke (2006) using NVivo 10.0 software. These guidelines are:

1- *Familiarizing with data*

This phase included reading the data (interview of participant one for example) in order to understand the general idea of the interview. This stage came from data transcription and reading the transcripts a few times. In this phase, I took notes and marked ideas for coding that were considered to be an introduction for the following step.

2- *Coding*

Before an explanation of this stage, I would like to reaffirm that for the purpose of the qualitative studies I used an inductive (bottom up) approach. This means that the themes that were identified in this stage were strongly linked to the data themselves (Patton, 1990). To achieve this coding (which represent the heart of data analysis) successfully, I used single sections or words which belonged to a defined category that were collected from the original story (Lieblich, Tuval-Maschiach, & Zilber, 1998). The following is an explanation of this process in details:

- Underline repeated words.
- List of all the repeating words that have been underlined
- Underline repeating concepts and ideas
- List repeating concepts (martial, karate, taekwondo, krav maga) or (VI and blindness).

This means that each category consisted of several similar ideas. Each developed category was given a name that I considered to be appropriate to the concepts of the ideas. This provided me with reduced data in meaningful segments and this is in line with Creswell's (2013) description of coding. This then provided me with the categories necessary for coding.

3- *Searching for themes*

Consequently, the themes were considered as broad units of information that were consistent across different codes to form an aggregated common idea (Creswell, 2013). Bryman (2012) expands the definition of theme as:

- A category identified by the analyst through the data
- That relates to the research focus

- That builds on codes previously identified.
- Provides the researcher with the basis for a theoretical understanding of the data that can produce a theoretical contribution to the literature relating to the research focus.

At the beginning of this phase I analysed the codes and considered how different they were. After that, I sorted the different codes into potential themes. Smaller themes were considered as child themes of the related themes with more general concept. This phase ended with a collection of candidate themes, parent and child themes, and all extracts of data that were coded in relation to the parent themes and child themes.

4- Reviewing themes

This phase aimed to examine whether all candidate themes were significantly important so they could be considered as themes. In this stage, it is common for some themes to collapse into each other whereas other themes may need to be divided into two separate themes. At the end of this stage a clear picture of the themes existed.

5- Defining and naming themes

In this stage I identified the essence of what each theme was about. I needed to organize data of every theme and to organize them into a coherent consistent account. This means that for every single theme I conducted a detailed analysis through identifying a story that each theme told. After that, I found a relationship between the themes and tried to set them up into a new story which would give a sense of the whole analysis.

6- Producing the report

This stage consisted of illustrating a description of the data and providing an argument chronologically since the narratives are told in a chronological order (Creswell, 2013; Czarniawska, 2004). This detailed description was interpreted according to my own views and in light of the perspectives in the literature (Creswell, 2013). Following Sparkes (2005), quotations were used to demonstrate descriptions of the data.

The thematic analysis was identified as a cross-case analysis which allowed me to compare and contrast themes and issues evident in the accounts of different participants (Carless & Douglas, 2013). Because the participants were different in regarding the age of visual loss, and the participants experienced different martial arts styles, different age and gender, it was expected that people perceive their lives in different ways. To explore the similarities and differences across the participants, this approach appeared to be appropriate. However, I tried to explore the relationship between the similarities and differences that existed to the benefits of martial arts practice in detail and did not go in to the details of every segment of their lives. My study aims were focused on the causes of self-esteem improvement in martial artists with VI and the strategies that instructors use to improve self-esteem in people with VI.

In the field of exercise psychology working with athletes, this approach has been followed by others (Golud, Dieffenbach, & Moffett, 2002; Holland, Woodcock, Cumming, & Duda, 2010; Kurkova, et al., 2011). The most recent of studies that used grounded theory and narrative approaches used thematic analysis (Duchesne, Bloom, & Sabiston, 2011; Nash & Sproule, 2009, 2012; Nash, Sproule, & Horton, 2008; Thelwell, et al., 2008). As detailed, the methodology of categorising the themes was determined after reading the transcripts.

To investigate perceptions and values of the participants a second phase of data analysis was used in which I focused on a within-case analysis using a narrative analysis of structure (Sparkes, 2005). With a narrative analysis the focus of attention shifts from 'what happened' to 'how people report a sense of what happened and to what effect' (Bryman, 2012). The 'hows' of the narrative practice has brought into focus when questions are asked to determine what is really going on during the intervention (Sparkes, 2005). This analysis approach therefore seemed to be necessary for the aims of this study which aimed to interview martial artists with VI in order to identify the mechanisms for self-esteem improvement due to martial arts practice. The narrative analysis also allowed me to focus on one story at a time, reflecting on the underlying themes and to consider broader cultural narratives underlying each personal story. Moreover, Coffey and Atkinson (1996) suggest

employing different analysis approaches ('whats' and 'hows') when conducting qualitative research will provide researchers with a better understanding of data since the researchers will explore the different facets of their data and explore the different kinds of order within them which is particularly important for narratives.

5.2.6 Trustworthiness of interviews analysis

Among different understandings of validity and reliability of qualitative research, Golafshani (2003) conceptualized them into trustworthiness. Different techniques appear to be employed when testing the components of validity and reliability. I used peer debriefing as an external check of credibility (Noble & Smith, 2015; Sparkes, 1998). Peer debriefing means that within the whole PhD process, namely preparing and conducting the studies, I had constant meetings with two supervisors who were asking me questions regarding the methods, meanings and interpretations of data (Lincoln & Guba, 1985). Also, internal auditing and constant comparison of data and possible interpretations were used through both thematic and narrative analysis to increase confirmability which has been identified by Sparkes (1998) as one of the essential trustworthiness criteria. In addition, transferability was addressed using thick description through interconnecting the details and providing quotes (Creswell, 2013). He further suggested that this process will hopefully allow readers to judge transferability.

Regarding reliability however, one of my supervisors conducted a peer review to verify the data analysis. The peer reviewer examined randomly selected interviews (25%) of data and compared his coding to the one that was previously conducted by me. Also, the peer reviewer examined the coding units created from the data and matched each of these themes with a theme previously established by me. A reliability rate 95% was obtained. Discrepancies were discussed until a consensus was achieved regarding the classification of coded units under the appropriate themes. This process of examining the trustworthiness of the research study was suggested by others (Hanton, et al., 2007; Lincoln & Guba, 1985; Sparkes, 1998).

Although it has been suggested to return transcribed interviews to participants to ensure the authenticity of the interview and to allow them to change the text

(d'Arripe-Longueville, Fournier, & Dubois, 1998) I could not follow this approach of assuring credibility due to the limited budget for converting the interviews in to Braille in different languages.

5.3 Results and Discussion

5.3.1 Introducing the participants

At the beginning of this section, I shall provide a brief summary of the martial artists' profiles. Demonstrating their profiles is necessary since the martial artists have been practicing different martial arts styles, have different sight experiences, different eye conditions, different genders, a wide age range, and different backgrounds. This will introduce the reader to the participants and consequently the reader will have a better understanding of the quotations that will illustrate the process that led to global self-esteem improvement. Summary of the participants' profiles is presented in the table below (table 5.4).

Paul (pseudonym)

Paul was diagnosed with RP which caused him deafness in one ear and gradually lost his sight beginning at the age of 21 years. At the time when he was losing his sight, Paul did not want to rely on others in his daily living. Paul started training taekwondo at the age of 15 years and he found the strength and confidence in taekwondo practice, mainly because being VI he gained a black belt and successfully competed with sighted people. Today he feels happy as a 6th Dan holder and working as an instructor of taekwondo.

Alan (pseudonym)

Alan was diagnosed with eye cancer when he was six months old which caused him blindness in the early age of his life. In addition to blindness, the bones of the right side of Alan's head did not grow as fast as the rest of the body. When Alan went to school, he was teased and bullied by his peers because of the way he looked and that affected his self-esteem. Alan's parents enrolled him in the local judo club where he felt accepted by the instructors and peers. Relatively quickly after being in the judo

club his self-esteem improved. Alan's progress in judo was fast and he represented Great Britain in Paralympic games (1992- Barcelona, 1996- Atlanta, 2000- Sydney, 2004- Athens, and 2008- Beijing), European and World championships for over 20 years. Today, as a 5th Dan judoka, Alan considers himself happy because judo, as he says, gave him life.

David (pseudonym)

As a prematurely born child with Retrolental Fibroplasia David has never experienced sight. During the school days David was told that he would not be able to do anything because he was blind. However, he practiced different martial arts styles, mainly aikido and now has a 4th Dan in this art. David believes that hard martial arts trainings taught him discipline, creativity, self-awareness, self-confidence, self-esteem, and social skills. After teaching music and IT for many years, David is today retired from teaching and works as a martial arts instructor. He describes himself as a happy person.

Tim (pseudonym)

Tim started losing his sight during his teenage years due to Cone Dystrophy. Being VI, Tim experienced a lack of confidence in certain situations and establishing social relationships. In 1982 when he had a guide dog, Tim started karate. Because of karate practice Tim reported an improvement in his self-confidence and self-esteem. Today, as a master of karate (3rd Dan) Tim identifies himself as a happy person satisfied with the way he is living his life and feels proud of what he has achieved.

Richard (pseudonym)

Richard suffered from RP at the same time when he started practicing ninpo ninjitsu. Although he had faced social barriers, Richard believes that because he was active in martial arts he improved his self-esteem. Richard feels relatively satisfied with his life and being a martial arts instructor for people with VI and as a holder of the 2nd Dan in ninpo ninjitsu.

Brian (pseudonym)

Brian gradually started losing his sight at the age of 11 years due to Stargardt's Disease. Brian accepted the fact that he would become blind and did not face any discrimination in society. However, he could not continue his career in hospitality and animal care. Due to martial arts practice, mainly karate, Brian improved his discipline, self-confidence, and self-awareness. Today, as a master of karate (holder of the black belt) and a martial arts instructor, Brian feels relatively happy.

Stuart (pseudonym)

Stuart started losing his vision as a teenager due to Glaucoma. Although he had good friends, Stuart was often exposed to teasing, whereby children made fun of him. Being in karate since 2008, Stuart reports that he learned about the human body, the ways to accept the challenges, and how to work hard to overcome challenges. Because of karate, Stuart built strong relationships with his karate peers as well. Stuart reported that he improved his discipline, respect to others, and became more patient. He has low academic self-esteem and relatively good athletic self-esteem which still needs to be improved.

Jo (pseudonym)

At the age of three Jo became totally blind and totally deaf in one ear due to Stevens–Johnson Syndrome. When Jo was around eight years old, his parents hired him a martial arts instructor to improve his self-confidence and self-esteem. Soon after that, his family moved from Taiwan to Canada where Jo suffered with English in addition to his impairments. During that period therefore he faced big challenges. However, Jo wanted to continue martial arts and practiced krav maga, jiu-jitsu, taekwondo, and karate to find the most appropriate style for him. Now he mainly does mixed martial arts (MMA) and krav maga. Jo believes that because of martial arts practice he is healthy, confident, patient, able to manage his emotions, and has good self-esteem. Today he works as a martial arts instructor and as a counsellor for self-esteem issues. Jo feels happy of being who he is and the way he leads his life.

Sarah (pseudonym)

When Sarah was 2 years old she had an accident that caused a head trauma and became VI. Sarah started training krav maga in 2011 which helped her to improve her self-esteem, self-confidence, and social skills. Sarah also reported that she started Brazilian jiu-jitsu that improved her physical self-perception.

Mike (pseudonym)

Mike had genetic disorder and was born partially deaf and gradually lost his sight from the age of 14 years. Mike went to the karate club where he found psychological improvement. Mike believes that karate practice helped him to improve self-confidence, self-discipline, self-control and his social skills. Mike does not feel very happy since he still wants to meet his martial arts ambitions (to improve karate skills and to become a karate instructor).

Scott (pseudonym)

Scott was born VI and became totally blind at the age of three due to Norrie's Disease. Scott reported that he faced similar challenges as the others with VI such as discrimination. He has been playing goalball for a while but in 2011 started iaido martial arts style. Due to the iaido training Scott reported that he improved his body awareness, mental focus, and lifestyle.

Linda (pseudonym)

Linda was born with Nystagmus and an abnormality of the optic chiasm and gradually lost her sight. Linda started doing karate more than one year ago and found that karate practice improved her self-confidence.

Table 5.4. Profiles of the martial artists which includes their year of birth, onset of VI and cause, main martial arts style, year of beginning martial arts, and country of the residence.

Name	Year of birth	Onset of VI + cause	Martial arts style	Year of beginning martial arts	Residence
Paul	1966	21/RP	Taekwondo	≈1981	UK
Alan	1972	6 months/ eye cancer	Judo	≈1979	UK
David	Early 1950s	Born blind / Retrolental Fibroplasia	Aikido + Judo	1957	UK
Tim	1953	Gradual decrease beginning at teen age / Cone Dystrophy	Karate	1982	UK
Richard	≈1957	≈43/RP	Ninpo Ninjutsu	≈ 2000	USA
Brian	1980	Gradually lost his vision beginning at the age of 11/Stagrad't's Disease	Karate	≈2000	USA
Stuart	1985	Gradual decrease beginning at teen age / Glaucoma	Karate	2008	Canada

Table 5.4. Profiles of the martial artists which includes their year of birth, onset of VI and cause, main martial arts style, year of beginning martial arts, and country of the residence.

Name	Year of birth	Onset of VI + cause	Martial arts style	Year of beginning martial arts	Residence
Jo	1981	3 years / to Stevens–Johnson Syndrome	Krav maga + MMA	≈ 1988	Canada
Sarah	≈ 1988	2 years / head trauma	Krav maga + Brazilian jujitsu	≈2011	USA
Mike	≈ 1984	Gradually lost his vision beginning at the age of 14 / genetic disorder	Karate	2011	UK
Scott	1992	Born VI and became blind at the age of 3 / Norrie’s disease	Iaido	≈2011	Canada
Linda	≈1961	Gradually lost her vision beginning in the childhood / Nystagmus and optic chiasm	Karate	2012	UK
<i>Note: ≈ is used for the participants who stated how old they are/when they started martial arts practice but did not identify the year.</i>					

5.3.2 Themes

I conducted 12 in depth interviews with twelve ($n = 12$) martial artists. The interviews ranged from 32 minutes and 10 seconds to 152 minutes and 39 seconds. All interviews lasted a total of 979 minutes and 05 seconds with an average of 81 minutes and 58 seconds. After approximately 95 working days of analysing 137,486 words, I found 666 references spread across 39 nodes (16 main parent nodes and 23 child nodes). Table 5.5 shows 16 parent nodes chronologically listed (from childhood to the present) including their child nodes and the number of the references for every single node. When I could not identify chronological order of events I ordered the nodes based on their relationship of importance to the study aim.

Table 5.5. Parental and child nodes from the primary analysis.

Parent nodes	Number of references	Child nodes	Number of references
Personal background	107	demographic information	67
		Consequences of VI	40
Social life	20	-	-
Models of disability	51	Medical model	17
		Social model	24
Attitudes towards different life domains	41	Different sports	26
		Hard work	7
Martial arts (general)	83	Beginnings	50
		Perception of different martial arts styles	7
		Martial arts today and before	1
		Difficulties of martial arts	4
		Challenges of martial arts for people with VI	17

Table 5.5. Parental and child nodes from the primary analysis.

Parent nodes	Number of references	Child nodes		Number of references	
Benefits of martial arts	145	Instructors		63	
		Training content		12	
		Philosophy		40	
		Learning strategies		25	
Competitions	43	Paralympics		9	
		VI vs sighted		25	
Self-esteem across life span	102	Childhood	School experience	34	9
		Adulthood		9	
		Global self-esteem		44	
Personal traits	15	-		-	
Hobbies	2	-		-	
Dogs	4	-		-	

Table 5.5. Parental and child nodes from the primary analysis.

Parent nodes	Number of references	Child nodes	Number of references
Others with VI	12	Characteristics	4
		Abilities	5
Ambitions	9	-	-
Advice for others with VI	30	-	-
<i>Note:</i> When differences between the parent node and child node exist it means that the number of references was not included within any of the child nodes but in general parental nodes. For example, in the node of “Models of disability” 51 references exist, 17 and 24 in the medical and social model respectively. The difference is 10 references which were not categorized under any of the children nodes.			

However, some of the nodes were overlapping and therefore after data analysis and following the narrative approach described (Creswell, 2013), I reconstructed the nodes in a chronological form that reflected the self-esteem changes across the lifespan and subsequently two types of themes existed; a) non-martial arts themes and b) martial arts-related themes. While the first type of themes focuses mainly on childhood experience and consequences of VI, models of disability, and sport experience the martial arts-related theme emphasizes the benefits that the martial artists gained from the martial arts practice and the mechanisms/reasons that led to these benefits from their own perspective (table 5.6). Although the main aim is to investigate the martial artists' perception about improvement in global self-esteem, their lives before martial arts practice needed to be understood. Such flow of the stories reflects a turning point of the martial artists' lives which characterises narrative researches (Creswell, 2013) and which enable the reader to better understand the benefits of martial arts training and how the martial arts practice has been considered as the turning point of their lives.

Table 5.6. Two main nodes and its themes after reconstructing the primary nodes.

Type of themes	Sub themes		
Non martial arts themes	Consequences of VI	Models of disability	Sport experience
Martial-arts themes	Benefits that the athletes gained from the martial arts practice	Mechanisms/reasons that led to these benefits from their own perspective	

The themes below were addressed by most of the martial artists and not all of them talked about all the themes. This means that some of the martial artists were active in talking about one part of their lives and passive about the other. Furthermore, all of the information contained in this study is self-reported by each martial artist. Next I shall address the themes that inductively appeared from the data analysis. All reported quotes from the martial artists will be presented as they were said by the martial artists in their languages without any changes.

5.3.2.1 Non-martial arts related themes

Within this node, I will demonstrate and critically analyse the themes which are related to the impact of being VI on self-esteem, participants perception of their impairment (models of disability), and the non-martial arts sports they practiced prior to martial arts training.

5.3.2.1.1 Impact of being VI on self-esteem

Almost all study participants reported that because of their VI they had significant psychosocial consequences and this affected their lives. These consequences were related either to their own negative personal perception of the impairment or to others' perception about them. Regardless of the age or cultural background of the participants, those who were born blind or lost their sight in the early stages of their lives were exposed to bullying and were teased by their school peers. For instance, Stuart had an undesirable social experience during the middle of the 1990s in Canada. His school peers not only verbally teased Stuart but they also physically attacked him, hitting, and taking his money and lunch:

“Some of them would either do little sayings, like make fun of you or poke you. And my school is in a forest. And we used to get into lots of, eh, fights. And I'd be fighting a lot [laughs]. As I got older cause they take you, they take your lunch money or, you know, they make fun of you. Or they say, 'did you see that coming', and then, you know, just randomly hit you.”

During his childhood in Taiwan, Jo had a similar experience to Stuart's where his school peers wanted to “prove” themselves. Talking about those days, Jo considered that had his parents been less influential he would have had a much worse experience:

“I mean, if we want to be honest about kids, I think most kids in the world are somewhat cruel [laughs]. You, you, you put a blind person – a minority person – in the school with a bunch of kids, that person will get picked on. Eh, it's just the way kids establish themselves. So my elementary school experience in Taiwan was pretty bad. Eh, I was actually fortunate that my family was, erm, pretty influential and so I came from an influential family that kind of protected me in some ways.”

Teasing and bullying are serious issues that may cause low self-esteem and depression in bullied children (Hawker & Boulton, 2000; Reijntjes, Kamphuisb,

Prinzia, & Telch, 2010). In the late 1970s Alan struggled with low self-esteem as his school mates were teasing and bullying him because of the shape of his face. Recalling those days Alan said:

“At the age of seven I was at school and, erm, kids started to tease me about the way I look. Erm, they started to bully me about, you know, basically all sorts of things about my glasses, the shape of my face, and all this stuff. And it was destroying my self-esteem. And at that point in my life I had, or so I am told, I don’t really remember all this, but so I am told I really just didn’t want to be me, and I wanted to be other people that, that didn’t look different, had their full sight, all that sort of stuff.”

Alan’s self-esteem was affected since in the middle to late childhood (8-10 years) children understand the reasons for self-evaluations and utilize social comparison for personal competence assessment (Harter, 2012). Furthermore, it has been reported by Bellmore and Cillessen (2006) that bullied adolescents perceive themselves as disliked by peers, socially inadequate, unlikeable, and lack peers support which reflect their negative social self-esteem. Regardless the country of birth, the martial artists who were born blind or lost their sight at very early stages of their lives (Alan, Jo, and Stuart) were bullied either verbally or physically. It is not surprising therefore that children with VI describe schools as unfriendly, places in which they do not feel accepted, but feel teased and ignored by others (Lieberman, 2011). Previously, Hutzler et al. (2002) reported that 6 out of 10 children in their study provided information about being teased and bullied by their peers. Recent research has also shown that children with impairments (physical, visual, and hearing impairments) still today experience bullying (Bourke & Burgman, 2010). In another study (Pinquart & Pfeiffer, 2011) adolescents with VI reported higher levels of victimization than students without VI. Previous study (Hawker & Boulton, 2000) also found a highly significant relationship between being bullied and depression ($p < 0.0001$) whereas children who had a tendency to be bullied had lower self-esteem ($p = 0.001$) (Rigby & Slee, 1993), feeling sad ($p < 0.0001$) (Williams, Chambers, Logan, & Robinson, 1996) and less happy in the school context (Boulton & Underwood, 1992). Furthermore, children with VI have greater difficulty with the development of social skills (Jindal-Snape, 2004) and therefore plausibly Alan and others stated that they suffered at that time from low self-esteem. Simply, they did

not feel socially accepted, which is one of the most important domains of self-esteem (Harter, 2012) and has been considered as a precondition for high self-esteem (Maslow, 1987).

By contrast, the participants who could use their sight, mainly during school, did not have the same experience of being teased, although they were discriminated because of VI and suffered from low self-esteem and/or depression. For example, Mike became blind when he was at university and had to use a cane to travel around but could not accept that he was becoming VI:

“By that time I was deep in depression. Trying to, erm...when I was in Newcastle it, it, that used to go out a lot. Cause you need friends and stuff like that. And, you know, it was round about that time I had to start using me cane. And I, I was embarrassed to use the cane. Everyone was always turning round and saying you’re taking the mick. You, you don’t look blind. Because I didn’t look physically disabled, there was nothing wrong physically looking at me eyes. I looked normal, erm, who’s to judge what normal is really. Erm, so yeah. I used to get into a lot of fights. So I stopped going out and it was mostly women were the worst. Women were the worst at shouting abuse. Saying ‘you’re taking the piss.’ So, eh, yeah I went into bad depression, stayed in and started drinking a lot. Erm, that was it. That was the, eh, highlight of University.”

Paul became blind when he was 21 years and reported that he could not accept the fact that in his view, from being an independent person he would become dependent. Paul said that it was difficult to face the issue of becoming VI and that people needed to be “strong” to overcome such challenges:

“It was very difficult to deal with, because most people as were born, we are individual creatures. We like to do things by our self, and as my sight got worse, that got taken away from me and I had to depend on the other people and I’ll be honest with you, I didn’t like it. Because I felt myself asking more and more for help with everything from eating cause I couldn’t see my food anymore to writing, I couldn’t write, couldn’t read a book so other people would have to read for me so now I can’t read or write. Couldn’t see TV so people were now talking all the time telling me what’s going on on TV. E, when you need a toilet, you have to ask somebody to take you to the toilet. And it became too much, it’s a lot to deal with, you have to be strong to deal with that.”

According to Bruce (2005) people with acquired VI experience significant change of life which is not often accepted. They become characterized with fearfulness and dependence (Lieberman, 2011) since they need to learn ADLs such as cooking and

bathing. It is not surprising therefore that the participants during the loss of sight felt a loss of control over self and environment (Orr, 1998) and as the findings showed, reported loss in life satisfaction (Heyl & Wahl, 2001).

As with Paul, Sarah wanted to deny her impairment and she did not want to accept that she was different from others:

“Do I think it affected me? Erm, yeah. I do think that, like when I was younger I was in denial that it, that it affected me because I just wanted to, my, erm, I just wanted, I didn’t want to be different.”

Linda did not accept her impairment as well. Moreover, she was waiting for a “miracle” to occur and become fully sighted. Since Linda’s eye sight did not meet her hopes she faced depression:

“You always think at the back of your mind that it’s gonna get better or some miracle’s gonna happen. Erm, and then for some reason it’s just dawned on me, I suppose, that no it wasn’t gonna be the case. And, eh, I did get depressed actually.”

According to Tuttle (1984) a major loss (such as sight) is significantly related to the feeling of a little value or worth. All the above mentioned symptoms of depression, disbelief, and denying the impairment were reported by Fitzgerald (1970). Above 80% of his sample, that included 66 adults aged 21-65 years, were depressed when they realized that they became blind and about 60% of the participants reported low self-esteem. In Papadopoulos et al. (2013) study, adults with VI also had significantly lower self-esteem than those with normal sight. However, in Roy and MacKay (2002) study the twenty statements test showed that participants with VI referred to themselves positively although their participants who gradually lost their sight had similar reports to the martial artists from my study.

According to the reports from the present study, low self-esteem was one of the main consequences of being VI prior to starting martial arts regardless of the reasons for the occurrence of low self-esteem (social or personal perception). Thus, this theme seems to be a rational introduction to the next theme which is about the participants’ perception of their own impairment, whether they perceive themselves as disabled or they think that people they meet in daily life disable them. In other words what we

see is the classic distinction between the internal medical model of perception of disabilities verses the external social model perception of disabilities. These models of disability will therefore be discussed next in the context of analysing participants' interviews.

5.3.2.1.2 Models of disability

As reported in the literature review (chapter 2.3) the main controversy between the medical and the social model of disability is a disagreement of what actually causes difficulties for people with impairments. Advocates of the medical model perceive disability as an impairment that is owned by an individual and which results in a loss or limitations of function or some other defect (Thomas & Smith, 2009) whereas according to the social model the responsibility for the disability lies with society rather than with an individual (Oliver, 1996).

Most participants in this study considered that VI may be a combination of the two models; which means that they perceived having limitations of doing what they would like to do, but also society very often made their lives more difficult. Talking about his experience, Brian thought that disability could be considered as both the medical model and the social model. However, Brian could not continue his work which supported the medical model:

"I was working at the Brooklyn Zoo after erm...for a few years but I just didn't pursue it because, you know, there was only so much I was able to do with what I specifically what I wanted to become. Obviously if you can't see that well you can't pursue a career in that field. It's just, it's too visual of a field, so I didn't pursue it."

Regarding the job that Brian used to do, he felt disabled because the work depended on sight and he felt that as his sight was not going to improve, Brian had to leave his job. Similarly, Paul believed that people who drive are so privileged and wanted to be able to drive in order not to feel disabled:

"I would love just to be able to drive. It's a beautiful experience. People really don't know how privileged they are. Just to be able to get into a car and go anywhere they want without asking somebody else. But you saw today I had to rely on the other people to take me here, to take me there."

Since being able to drive is one of the main privileges that a person would like to obtain and preserve (Huss & Corn, 2004) “the loss of driving privileges may be particularly traumatic” (Bruce, 2005, p. 1128) for people with acquired VI. The inability to drive, in contrast to the major population, had an effect on Paul’s self-esteem. However, Jo would also like to be able to drive but he argued that he could perform 95% of normal daily living activities in contrast to the 5% of the activities that he could not achieve at high level due to his VI:

“I would really love to be able to drive, so I don’t have to wait for a bus. Well, you know, I mean, I, yeah, I like to say that I can do ninety-five percent of the things that I, that people can do but there are five percent of things that I must admit, I either can’t do, or just not very good at it. Like, you know, like, eh, house cleaning.”

This means that Jo did not deny that he had certain limitations due to his blindness, but he could perform most daily tasks. From the view of the social model, Jo is not disabled since the impairment is a functional limitation whereas disability is the loss of opportunities that resulted from discrimination (Crow, 1996).

Despite certain limitations, according to all of the martial artists in the present study the social model was closer to their perception of disability than the medical model. For example, Tim has never considered himself as disabled and strongly believes that disability lies in society:

“I would say that my...in many ways my, I would say my life has been based on this idea that...disability is, is in the, a disability is in the eyes of the, of society. Not in the individual’s eyes. In other words I don’t see myself as disabled. I’m just me. And [laughs] you know, so...I’m...and...so I, I’m very much the, of the opinion that...what makes a person disabled is, is what society...wants to see or sees. And if they see a disability then that’s, that’s, that person is disabled. If they just see a person who has got...certain strengths, certain weaknesses then they just, you know, there is no disability. We’re all disabled in that sense or not disabled.”

Further, in the 1970s Tim worked in a school for blind children in Kenya where he found life easier and did not pretend to be sighted compared to the UK where he could not find a job just because he was VI:

“When I went to Kenya when I was working in the school which was specifically for the blind, of course that wasn’t an issue. In fact I because...in a way I was

living and working in an environment where, where being blind or partially sighted was the norm. So no-one expected you to, to be able to see perfectly well. And so that was, in some ways, quite...quite a nice...made life a lot easier, you know, in terms of psychologically because...you know, I wasn't trying, I wasn't trying to pretend about my sight any more, I didn't need to.....I had some interviews [in the UK] and I could tell that a lot of people were, were doubtful whether I could even do the job because how would you see, how can you do the job if you can't see, you know, can't see properly. You know, I got all that sort of feeling. And so it was quite demoralising."

Stuart had a similar experience to Tim where he always had to 'prove' his abilities to show people that as a person with VI he could achieve required duties competently:

"In the professional world and even like as I said, with friends, you've got to prove yourself to them. Or they don't, like at work right now, lots of times, they won't hire you because they're afraid that they, of situations that can arise in their mind that are imaginary of having a visually impaired person."

In the last three quotes the participants clearly stated that society disabled and discriminated them. The definition of disability adopted by the British Council of Disabled People supports this concept "Disability is the disadvantage or restriction of activity caused by a society which takes little or no account of people who have impairments and thus excludes them from mainstream activity. (Therefore, disability, like racism or sexism, is discrimination and social oppression)" (Morris, 2001, p. 2).

Another social barrier that the participants faced is the difficulty that sighted people have in daily dealings with them. For example, Paul thought that he lost his best friend because he became blind:

"A friend of mine I used to hang around with all the time and go night club with because I can't see any more I said it's too difficult to go night club because I am always bumping into people so rather than visiting me all the time he now found other friends to go out with. So yes, I understand that, you do lose friends because of your impairment."

Previous research (Brittain, 2004) also found that the athletes with acquired impairments lost their friends when they became impaired. Because people with normal sight were not comfortable being in the environment with people who are VI, Richard could not find enough volunteers to help him in teaching students with VI martial arts:

“Getting people involved to volunteer is difficult because of, I don’t know, people are kind of shy. They don’t know how to treat somebody who’s blind. Or maybe they feel uncomfortable. But that’s been another situation I’ve come across.”

Although Rosenblum’s (1998) results showed that 30% of people with VI have friends with impairments, Rosenblum (2000) and Gold, Shaw, and Wolffe (2010) found that people with VI have mostly friends who are sighted. By contrast the martial artists reported that they stayed either without friends or had to find others with VI even if they did not have much in common or did not share the similar thoughts. Talking about this topic Sarah said:

“We’re like, ‘oh my gosh, you’re visually impaired too’. Even, you know, it’s just that thing, that kind of, that we’re that bind so to speak. You know, like, erm, it’s something so obvious that shapes your life. So when you find someone else who, who’s also, erm, who can relate from your point of view then you tend to, erm, you know, tend to stick together. So I think that’s really what it is and why I know so many visually impaired people. And, erm, because I do, you know, because obviously they’re, I don’t think if we were we probably wouldn’t have too much else in common.”

Findings from the previous study (George & Duquette, 2006) supports Sarah’s view that children with VI feel happy in a summer camp for children with VI since everybody knows what it feels like to be VI. Thus, we can see that the two models are equally important. Some people with disabilities think that they are disabled by their bodies, while others argue that they are disabled more by environmental and economic barriers than by their impairments. As there is a complex mix of biological, psychological, cultural, and socio- political factors, it is difficult to determine the border between the beginning of impairment and the end of disability (Shakespeare & Watson, 2001). Thus disability should be viewed neither as purely medical nor as purely social model (Thomas, 1999). Therefore, it seems that Shakespeare (2006) is correct saying that a balanced approach which will give an appropriate weight to the different aspects of disability is needed.

However, David did not consider himself disabled since he was fully independent and performed all daily activities without assistance:

“I think there are worse disabilities than blindness anyway, you know, really. Eh, but as a person I’m reasonably independent. I don’t have helpers coming every day or anything like that, you know. So I’m that sort of independent really.”

Although many researchers support the social model of disability (Lieberman, et al., 2013), David did not state that society disabled him in any way. Therefore, we cannot ignore the arguments of those who do not consider themselves disabled. According to Shakespeare and Watson (2001) many people with impairments do not want to be identified as disabled. They argue that impairment and disability describe different places on a continuum, or different aspects of a single experience. Thus, ongoing debates on the appropriate use of experience in disability research (Barnes, 2003) will lead to nowhere. Instead of such debates I would recommend that scholars and researchers focus on improving the facilities that people with impairments need and to work on increasing the awareness about impairment /disability in society.

Despite the social and personal barriers that the martial artists face, most of the martial artists (7) participated in different exercises/sports prior to martial arts. In the next theme and following chronological events I shall address their non-martial arts sport experience which may provide the reader with how different exercises can/cannot impact the participants' self-esteem.

5.3.2.1.3 Sport experience

Most of the participants, before doing martial arts, were physically active. For example, Brian was doing lacrosse and baseball, Jo was participating in dragon boat racing, Linda was swimming, Scott and Sarah practiced goalball, whereas Tim was active in table tennis and Stuart in wrestling. They participated in these sports for a few years and most of them participated in the competitions at different levels. However each experience was different.

Linda, started swimming in the 1980s. However, she had to give it up because she could not swim in the lanes without bumping into the others:

"I used to go swimming but that was another thing I found. I kept, because of me poor peripheral vision, I'd be going up and down the lanes. But of course I never saw the people in front of me until the last minute. So I'd sort of keep swimming into them which was a bit embarrassing. My mate would have to explain that I was visually impaired."

Tim faced similar problems. He could not compete in table tennis because this sport depends on light and reaction to the ball. Talking about university championships in table tennis when he represented his university Tim said:

“I remember once, some, other people in the club persuaded me to enter the, the sort of University championships of the table tennis. And I said, ‘oh now, I don’t, you know, I’m not sure about that’. But anyway I went along and the, and the, the...the sports hall...was...it’s a great big sports hall but it’s all glass. And this is in daytime, you see. So I went along and...and I was, and in the first round I was, I was meeting actually a really good player. He, he went on, I think, to either win or, or certainly. So and we started and he realised straight away I couldn’t see the ball. So I actually managed not to, not to score a point at all because I couldn’t see the ball at all. Which was slightly embarrassing. But so I didn’t, I didn’t enter those championships again.”

Mike had to give up rugby as well since he could not see the ball. Talking about his rugby experience Mike said:

“From the age of...from the age of five up until the age of, eh, eh, sixteen. And then I tried again at eighteen at X University. And, eh, even then it were getting hard to see them passing the ball at training. You know when it was getting to like twilight mode? It wasn’t dark, it wasn’t light, just twilight. And I couldn’t see where the ball was. So, eh, I gave it up when I was sixteen.”

From the previous three experiences it is evident that the participants could not be engaged in every physical activity with sighted people due to their VI and/or external barriers. This result supports previous findings that 63 % of people with VI do not take part in physical activities and exercise due to their disability whereas 43% believe that they need additional support (English Federation of Disability Sport, 2013). In another study (Jaarsma, Dekker, Koopmans, Dijkstra, & Geertzen, 2014) it was found that active participants with VI reported dependence on others (28%) and being VI (14%) as personal barriers to exercise. Mike did not want to practice adaptive sport but he also could not follow his sighted peers because he was VI and consequently had to quit rugby. This is not surprising since the English Federation of Disability Sport (2013) found that 63% of individuals with VI would prefer to participate in activities with disabled and non-disabled people.

By contrast, I believe that Tim and Linda could not continue their activities more so due to the lack of additional support and not because of being VI. The environmental technologies may be considered as an additional support and according to DePauw

and Gavron (2005) swimming pool organizations and its facilities are an essential component of most physical activities. Further, swimming has been considered as one of the recommended activities for individuals with VI within the United States Association of Blind Athletes (USABA) (Lieberman, 2011). Linda could safely swim if the pool was better organized. Subsequently this may be considered as environmental rather than personal barriers.

Jo however, was participating in dragon boat racing for a few years and gave it up because he did not enjoy it. Moreover, he did not feel happy at that time:

Jo: "I was a dragon boater. I don't know if you know what a dragon boat is?"

Me: "No."

Jo: "Like, yeah, like a canoe, like canoeing, yeah. So, I, I was doing that at the side. But that's not nearly as exciting as martial art. Because you just sit in the boat and paddle around for an hour, you know. It's good exercise but it's really boring exercise [laughs]. Especially when you can't see the scenery. Eh, yeah, so I didn't even know. It, it, it might be strange to say but I didn't even know that I was unhappy. I woke up every day, I know, I what I do today, I, I would wake up and say 'okay, today's the same as yesterday, and tomorrow will be the same as today. I go to work and I come home and then I go to paddle in a boat for an hour and, and that's it'. Every day is the same. Repeat over and over. For ten years. And then a lot of things happened to re-, eh, eh, three years ago, eh, some personal problems and relationship problems and, eh, also my dragon boat team fell apart, and it was like everything that I lived on for ten years was just coming apart."

Sarah stopped running for similar reasons as Jo, she did not like it. Further, Sarah played goalball but did not want to continue because she did not feel comfortable within the team:

"I stopped track and field because Samir I hate running [both laugh]! Here's the deal, it's not fun at all! Erm, but, erm, in goalball, let me see...I actually, I played that in high school and then again as an adult. Like I wanna say about two years ago I was playing on a team, on an adult team. And it's just, I dunno, but, erm, it was the team I was playing with. The people, it was really kind of hard to get along with them. So after I finished the year because I just can't play in the middle of something, erm, but I finished out the year and then I just decided I didn't want to go back because it was, there was the same people and nothing had changed."

In contrast to these two examples, in Jaarsma, Dekker, Koopmans, Dijkstra, and Geertzen (2014) study none of the 411 active adults with VI did report “Do not like exercise” as the barrier to exercise. Nevertheless Jaarsma and colleagues found that 12% of the 236 inactive adults with VI did not exercise because they did not like it. However, feeling comfortable within the team was important for Jo as well. According to Jo’s experience, he believed that politics in the team sports was a main disadvantage for those kinds of activities which was not present in the individual activities and therefore he preferred to participate in exercises that contained individual activities:

“Most sport there’s going to be politics. There’s going to be, like, especially in team sport, you don’t get along with someone and you think someone is doing something wrong and eh, blah, blah, blah. You know, there’s going to be a lot of those kind of situations you get into with the team sport. Eh, so it’s the kind of thing you don’t see as often in martial art. It’s just you and your training or you and your training partner, eh, or partners. Eh, you know, it’s something that you go, you work on something specific and you work on the new kata, you work on a new form. You know, you work on a new drill and then you spar. And when you spar it’s just you and whoever you are sparring with. There’s no politics. There’s very little talking, you just do what you’re there to do.”

According to Theeboom and De Knop (1999) martial arts in general can be performed through individual routines (e.g. kata), partner routines (semi-kumitte), and kumitte. However, none of these three routines requires team participation. Thus, and taking into account that martial arts are focused on the students’ own accomplishment and not by comparing themselves to others (Winkle & Ozmun, 2001), conflicts in the dojo are less likely to happen.

Furthermore, in other sports, Brian did not find the type of discipline that is found in martial arts. Talking about his experience in baseball Brian said:

“The discipline you receive at the dojo you can’t really receive it in other sports. Because, I, you know I take [laughs] I am also part of a modified version of baseball, beat baseball. And...we just came back from the world series, erm, which was held in Columbus Georgia. Eh, it was basically a week and after we compete the other day, you know, we have a bunch of guys drinking and, you know, the discipline is not there even though we have fun. But the discipline is not there. If that was a dojo, eh, martial arts competition, you know it would be a different atmosphere.”

From Alan's point of view as an ex-world champion in judo, martial arts are more technical than some other activities which improve creative, mental, and intellectual skills of the participants more than these activities:

"I have never done them so I am only speaking out of turn here but running for instance, and swimming, you can only run and swim as fast as you can run and swim. You've got a personal best. Whereas in martial arts, in particular judo and karate and those type things you...you have got a moving object in front of you as another person, yeah. So if that other person makes a mistake, you win. If you make a mistake, that other person wins. Whereas in swimming or running, you can only run your best and if your best is good enough to beat that other person then great."

Alan divided activities into two big categories: open-skills (e.g. judo, karate, football and so forth) and closed-skills (e.g. swimming & running) (Haibach, Reid, & Collier, 2011). Open skills are those skills that are significantly affected by the environment whereas closed-skills are skills that are performed in more stable predictable environments (Gray, McMorris, & Sproule, 2012). Although Alan mentioned that open-skill activities improve self-confidence more than the other activities he did not explain the reason. However, due to the external factors (such as the presence of the opponent) every single time the athletes/martial artists have to use different techniques, which are appropriate for the environment circumstances at the highest levels. This needs a lot of hard-training and if the martial artists pass all barriers in a competition their confidence will improve. This also requires mental training during the technical practice in addition to physical training. This means that Alan believes that practicing closed-skills sports people cannot improve their intellectual self-esteem because of that particular sport in contrast to the martial arts.

The experiences of martial artists with VI indicate that they could not adopt themselves in different sports they had practiced. This outcome reflects that their self-esteem either was not improved because of doing sports or had a negative impact as they could not be a part of a team or could not continue sports in which they were interested. However, the study participants did not give up in seeking exercise that would be appropriate to them and meet their needs. They found martial arts as an exercise setting which they could practice and more importantly gain the benefits of its practice. With respect to the other physical activities and sports, most of the study participants continued only with martial arts due to their impairment or negative

perceptions about the other activities. Following a narrative approach and chronological presentation of the participants' lives, within the second category of the themes I will present the results of the benefits that the participants received from martial arts practice and its mechanisms, which is the aim of the study in this chapter.

5.3.2.2 Martial arts related themes

In this theme I will address only the narratives that express feelings of the participants about martial arts benefits. Following a chronological order of the lives and events, I shall address the psychosocial benefits that the martial artists received from practicing martial arts and then report the mechanisms that lead to self-reported self-esteem improvement.

5.3.2.2.1 Benefits of martial arts practice

Almost all of the participants reported that due to martial arts practice they improved their self-esteem, self-confidence, discipline, and body awareness. It appeared that martial arts practice helped those martial artists who had low self-esteem or depression issues. For example, Mike said that karate practice helped him to get out of depression in contrast to rugby practice or anti-depressants that he was taking before training karate:

"I've always looked at it as, erm, people take anti-depressants, don't they? I don't because it doesn't work for me. Erm, I've always been active. Running, cycling, erm, rugby...so for, erm, you've got some sort of endorphin in your own body that, erm...I don't know if I've used the right word there – endorphin or...but it, eh, releases a certain chemical in your body where you, eh, you be more calm after the end. So if it makes you feel better being thrown about and, erm, getting the living daylight's kicked out of you. And then after that half an hour or an hour you feel better in yourself. And you feel more calmer and in control. So be it, that's what I think martial art is all about and it, erm, it's a medication to me. Erm, there is, it's a self-meditation in some ways – martial art."

Although Paul did not fall into depression at the time when he was losing his sight, Paul believed that unless he was not practicing taekwondo he would face depression as well:

"I felt I was better at taekwondo than skating [laughs] and I think the taekwondo was the part that made me strong so I felt I couldn't give it up because without

it.... I hate to admit It, I would probably have gone depressed. So, I feel part of my strength has come from martial arts."

This finding supports previous outcomes since in a pilot study ran by Chateau-Degat, Papouin, Saint-Val, and Lopez (2010) the authors investigated the effect of karate practice on the quality of life of 15 sighted men ($M = 56.7$ years). Results of their study showed a significant reduction of Beck Depression Inventory scores at the second (4.9 ± 1.0 , $p < 0.01$) and third (4.9 ± 1.1 , $p < 0.01$) evaluations compared with baseline (9.8 ± 1.1). Moreover, in their systematic literature review Chi, Jordan-Marsh, Guo, Xie, and Bai (2013) found that tai chi practice had a significant impact on reducing depressive symptoms.

Furthermore, one of the benefits of martial arts practice that was stated by the participants was self-esteem improvement, namely, global self-esteem. Sarah stated that just because of martial arts practice she became a happy person in contrast to the time when she was playing goalball and was running:

"I was not a happy person and I did have issues with self-worth. But now I don't know if it's due to the martial arts or due to the improved self-confidence. But I do now feel like I am a worthwhile person. And, erm, no matter what happens I know that, no matter what happens in my life I know that I will always be, at the very least, okay because I just know that I will always triumph in some way or another. I don't know what that's due to but it's just something that I know and I feel.....I felt like when I started krav maga, all...let me see...when I came into krav, when I began krav maga, erm, yeah I was very apprehensive and very shy and unsure of myself. But as, as the months progressed I felt, erm, that shyness kind of went away because I started to feel more confident. And like I said, the only thing that had changed in my life at that point was the, erm, was practising krav maga. So I felt like that's why I attributed that sort of boost in self-confidence to, erm, training in krav maga."

Paul reported that he found an improvement in self-confidence and self-esteem after several months of practicing taekwondo. He considered such improvement in several months as an advantage of martial arts arguing that the other sports could not improve confidence within that short time.

Me: "What was the point when you felt better as a result of taekwondo? Was it after one month, after one year, after 10 years?"

Paul: "Ok, yes I would say it was several months. That's a good thing about martial arts and not just taekwondo. I think martial arts is a good way of students

especially children see an improvement in their abilities very quickly. And that, in its self builds confidence and self-esteem”.

By contrast, Alan who was teased by his school friends found that after only a few weeks of practicing judo he accepted himself and improved global self-esteem as well:

“At that point I [three weeks after judo practice], I then started liking the way I looked and started...well not liking the way I looked...but I started liking me, accepting me that this is me for the rest of my life, you know. Erm and if you want to tease me go for it. I don't like it but, it's your choice. I have gotta stay with me for the rest of my life. I am gonna to walk away and I am going to tell someone. And that I think was the turning point in my life, where judo effectively gave me a life.....It [judo] gave me self-confidence, self-esteem. It, it, right at the beginning it kick started me to actually quite liking myself you know, and believing in myself, giving me that self-belief. Okay. It taught me how to communicate with people right. So it taught me how to talk to people in the right way. It taught me respect, it taught me manners, okay. But it gave me confidence to try new things. So for me, summing up, what did judo give me? The best two presents that judo gave me when I, through my whole career has been my self-esteem and my confidence. And that has given me the ability to not only be successful at sport, but have an unbelievable family in my wife and two kids.”

Although this is the first study that addresses experienced martial artists with VI within the context of martial arts and self-esteem a positive impact of martial arts practice on global self-esteem in sighted people has been found in the previous studies with a medium risk of bias (Blowers, 2007; Taylor-Piliae, et al., 2006; Taylor-Piliae, et al., 2012; Yang, 1997) and low risk of bias (Li, et al., 2002). However, in contrast to Alan, Paul thought that his confidence and self-esteem improved within a few months and not after few weeks.

Furthermore, Yang (1997) found self-esteem improvement in sighted people due to martial arts practice occurred after 3 months of the training, whereas Li et al.'s (2002) results showed an improvement in global self-esteem in sighted people after 6 months of the tai chi practice. It seems therefore that a complex mix of internal (e.g. personal traits) and external (e.g. instructors) elements influence the rapidity of self-esteem improvement. The other potential reason for the difference in the time for self-esteem development could be the martial artists' age when they started practicing martial arts. Alan started judo training when he was at the age of 7-8 years whereas Paul began taekwondo practice at 15 and Sarah in young adulthood.

Previous research found that the stability of self-esteem is lower during childhood (6-11 years) compared to adolescence (12-17 years) and adulthood period (18-29 years) (Trzesniewski, et al., 2003).

Self-confidence was also one of the benefits that the study participants significantly gained from martial arts practice. Martial arts practice improved Tim's confidence and therefore he believed that he could travel safely. Talking about the benefits of martial practice Tim said:

Tim: "I think it's, is a definite factor in terms of the sense of...you know, confidence. And...I mean I've always seen it as, it's one of these things, it's like something hidden, something that you have but, you know, people don't see it. They don't know when they meet you that you've got a certain ability or a certain skill or a certain, you know, ability to, to...you know, for self-defence. But that...but I know it and that makes a difference to me. I know how I feel about myself."

Me: "How do you feel because of that?"

Tim: "I just feel that, you know, I'm never, I never sort of feel physically intimidated or, or anyone can, you know, you know, when I'm walking about or..."

Me: "You feel safe."

Tim: "I'm safe, feel safe and secure yeah. Or in a, you know, I, although I've never had to actually use it in terms of self-defence. I know I could do. And I know that...in, in many ways...it's given me a lot of, a lot of confidence. And that confidence has definitely made a huge difference, I would feel, to my...to my life out with karate. In my work, in my...in, in my relationships and...with my children."

Richard reported that because of martial arts training he felt safe to travel as well:

"It's benefitted me 100%. And I, eh, I use my martial arts experience now in everyday life especially, eh, I live in New York City. I live on X but I travel into Y, New York. And any given day if I'm on the subway or the train or the street even, it's always crowded. So I'm always aware of where I am, who I'm with, who's around me."

Feeling safe and being able to employ martial arts skills, if necessary, improved self-confidence among the study participants. Thus, they felt confident to travel around the city or country. The reported statements support finding of the previous research that explored the benefits of martial arts practice among people with congenital, physical, and sensory impairments (Martin, 2002). Martin developed a 16-item questionnaire for the purpose of the study. Among 20 recruited participants 80%

perceived that they improved self-confidence due to martial arts practice and 70% of them perceived an improvement in self-esteem.

Furthermore, Brian improved not only self-confidence, but also self-awareness and discipline since he has been practicing in martial arts:

“The level of discipline that I have received [from martial arts], the level of confidence, self-awareness. You know, it’s just, yes it’s helped me out, it definitely has. Because if I didn’t have, eh, the discipline, the sense of...erm...you know, the...the lack of, there would be a lack of motivation. So, instead of being home and not feeling sure if I can do this because I can’t see well anymore, I would most likely be home and just feel sad for myself, I think, you know.....With martial arts it’s definitely given me the opportunity to move forward with the discipline that has helped me out up until this point.”

Although Linda believed that martial arts practice improved her confidence, it actually improved her exercise self-efficacy. Linda said:

“It’s given me more confidence.Erm...given me more confidence in meself. Erm and belief. Eh, I think I’ve surprised meself that I can do it actually.”

In chapter 4, three college students with VI had low exercise self-efficacy which was improved after a 10-week karate programme intervention. Moreover, previous research (Caldwell, et al., 2009; Taylor-Piliae, et al., 2006; Taylor-Piliae, et al., 2012; Yeh, et al., 2011) also found that tai chi practice improves exercise self-efficacy in sighted adults. Therefore, Linda’s self-reported improvement in exercise self-efficacy due to martial arts practice supports previous findings in people with and normally sighted adults who were practicing martial arts.

Jo argued that because of martial arts practice he improved as a whole person and gained all previously mentioned benefits. Jo believed that martial arts practice helped him to become a better person, improved his social relationships, and developed his self-confidence and self-esteem:

“I think it, eh, makes me a better person. I think it allow me to be confident when I go out, eh, into the community. It allows me to, eh, it allows me to stay fit and healthy and, eh, eh, and when I walk into a place, eh, to look for work to, to, to, eh, or when I appear in public, I look, you know, I look good. I look, eh, like I take care of myself, I look I take, eh, I live healthy. Eh, and also, eh, now doing martial art it’s eh, allow me to be, eh, more at peace with myself. If I’m angry or if I’m frustrated, I can just put down whatever I’m doing, I, you know, go to the dojo,

going to the martial art studio or, you know, find a sparring partner or just practise whatever I want to practise and it takes my mind off the kind of other difficulties I went through during the day or at work. So, you know, it makes me happy, it makes me confident. And, you know, I, like right now, I can't really imagine a life without it."

After analysing the benefits that were reported by the martial artists I considered it necessary to discuss martial arts benefits in contrast to the other exercises. Sighted individuals who are practicing martial arts already have a positive motivation towards a need for exercise (Twemlow, et al., 1996). The participants from my study however reported that they tried different sports but they did not benefit from these activities whereas martial arts practice offered them numerous psychosocial benefits including global self-esteem, which seems to support Binder (1999) who claimed that martial arts have a unique influence on the long-term psychosocial change. Although Blinde and Taub (1999) found that people with physical and sensory impairments psychosocially benefit from physical activity participation they failed to report what kind of activities their participants were involved in. Moreover, the main difference between any sport and traditional martial arts is that in sports the main focus is on winning whereas according to the International Shotokan Karate Federation (ISKF), the focus is on the psychosocial and physical participation, and not necessarily on winning the tournament or receiving a black belt (Funakoshi, 1973). However, Blinde and Taub's (1999) result does not support Foster's (1997) findings in sighted adults. Foster found that university students who practiced golf, aikido, and karate did not achieve significantly different scores on the pre-test of the Rosenberg's Scale of Self-esteem (1965) compared to the post-test results. The study did not compare the results across the groups but only pre-test vs post-test.

According to Fuller (1988), an improvement in psychosocial aspects such as self-esteem and mind-body coordination may be a result of the fundamental martial arts practices such as breath control, being in an environment of discipline, self-respect, and respect to others. However, the participants from my study identified that the absence of discipline and intellectual improvement in the other activities, not liking the activity, environmental barriers, and being VI as the main reasons for giving up other exercises or not receiving benefits from these exercises.

By contrast, martial arts practice does improve discipline and has been identified as one of the main reasons for studying martial arts (Twemlow, et al., 1996). For example, during martial arts training, students with higher degrees are standing at the top of the row and students with the lower belts are at the end of the row. Every student knows his place according to his belt. In the meantime, and as it has been mentioned previously, there is respect among all in the dojo (Iedwab & Standefer, 2000). Furthermore, and with respect to the other exercises and enjoying practicing them, Zaggelidis, Martinidis, and Zaggelidis (2004) recruited 56 sighted judoka and 47 sighted karateka to investigate their motivations for studying martial arts. The first reason among both the groups was interesting activity, with 76.6% and 71.4% for karate and judo respectively. Some of the participants with VI in my study reported that they did not like non-martial arts activities in contrast to martial arts.

Although the discussion above may not apply to everybody, the reasons for the martial arts benefits, namely on self-esteem, have not been investigated previously in the literature and shall be addressed next to answer the research question.

5.3.2.2.2 Mechanisms for self-esteem improvement

Within the previous theme some of the participants' quotes indicated potential mechanisms for self-esteem improvement. Despite the overlapping that exists among the themes, the participants stated more direct and significant sentences that do seem to indicate the mechanisms for that improvement. The participants acknowledged many factors that impacted on their self-esteem. Although not all of them were able to recognize the mechanisms for the improvement in self-esteem, through analysis of the interviews, the core nodes of the importance of social and intellectual domains have been identified as the main reasons for the self-esteem improvement. Various sub-categories have also been acknowledged. The main two nodes and their themes will be addressed next.

5.3.2.2.2.1 Social self-esteem

I begin this discussion with this node since social self-esteem appeared to be the main reason for self-esteem improvement. Particularly instructors have been considered important in the successful martial arts practice regardless which style of

martial arts people seek to learn (Iedwab & Standefer, 2000) and play a significant role in creating an inclusive environment (Block, 2007). The martial artists reported support with this point and Scott said:

“I think if you get to a good martial arts dojo and a good sensei you will have good training in both areas, mental and physical.”

Social self-esteem scales mainly focus on social acceptance and peoples’ ability to interact with others (Harter, 1988; Messer & Harter, 1986). What this thesis explores is the mechanisms for self-esteem improvement addressing what leads to the improvement of acceptance and better interaction. In the line with the aims of the study, 3 different themes existed within this node as to highlight the participants’ perception of how important instructors and their dojo peers are in improving global self-esteem through social self-esteem improvement.

a) No discrimination: acceptance

From the data analysis, it appeared that the first step that the instructors need to realize is avoiding discrimination. Stuart for example said that because he was discriminated in martial arts clubs, he could not begin training since he felt discomfort:

“I went to another person to ask will you train me, they said no cause I’m visually impaired. They don’t feel comfortable doing that. Other people said, ‘it’s a safety issue, you can’t do this. We won’t have you’. You know, like so I went around to all these places.”

Scott had the similar experience as Stuart when he visited different clubs and did not find a sense of welcome from the instructors and therefore he did not want to train martial arts. Talking about these instructors Scott said:

“They were a little nervous about having a blind person because they’d never done it before. Eh...the kendo instructors were a little less, erm, unwilling than the aikido instructors were. And they said, ‘well you can come back’. But I never really got a sense of true welcome from them. So I just never went back.”

This finding has been supported in the previous research conducted by Lieberman et al. (2002) when they found that PE teachers may be the most significant barrier for including children with VI in PE classes. Moreover, Brittain (2004) also found that

from the perspective of elite athletes with impairments, people without impairments play a key role in keeping people with impairments distanced from exercising.

Jo supported Stuart and Scott but added that he had to visit many clubs to find the instructor who would be willing to accept him. Therefore, Jo showed greater respect to his instructors just because they were willing to teach him:

“I do respect my trainers immensely because they are taking a chance. A lot of other people would not. When I looked for someone to train me, I always have to look for maybe ten, twenty people before I find that one special someone who will do it, because it’s hard work.”

Having a good instructor is assumed to encourage students to regularly practice martial arts. This is clear from Scott’s experience:

“Iaido though on the other hand was, it wasn’t that hard. I just, I emailed the sensei and I asked him, you know, ‘would you be willing to accommodate a blind student’. And I told him how, erm, he would have to accommodate. And he said, ‘sure we can try it. And we’ll see how you do’. And, you know, I came and I did well and so he took me and then I, and I went regularly for a year and a half.”

Being accepted by instructors appears to be a criteria to influence people with VI to learn martial arts. This result supports a socialization model proposed by Eccles and Harold (1991) which assumes that positive attitudes towards teaching people with impairments can increase their motivation towards physical activity participation. According to Dishman, Hath, and Lee (2013) theories about how people make decisions to exercise may be divided into two categories: a) theories about forming goals and intentions (self-efficacy theory, self-determination theory, and theory of planned behaviour); and b) perceived barriers to behaviour (physical and social barriers). Results from my study indicate that social barriers were the main factor that impact people with VI decision to practice martial arts. This outcome reflects the support for the previous studies which found that PE teachers practice discouraging behaviours towards children with VI (Winnick, 1985) and form one of the main barriers to physical activity of children with VI (Robinson & Lieberman, 2004). Moreover, parents of children with VI perceive that teachers of their children lack a knowledge of assistance and subsequently create a barrier for children’s physical activity (Stuart, et al., 2006). As the expert in the field of adapted physical activity,

Winnick (2011) noticed that students teachers do not have experience to teach students with special needs. Regardless of the reasons for not accepting the students with VI, the results showed that unless the participants with VI find an inclusive welcome and support they will not continue the participation.

This was supported by Sarah who had high praise for martial arts just because the instructors were willing to teach her although they did not how to work with students who were VI. Only feeling accepted by the instructors helped her, in her opinion, to improve global self-esteem:

“I would say that the biggest thing, the biggest hurdle was, erm, was actually reaching out to the krav maga, erm, school and letting them know. So, erm, and the fact that they were so welcoming, I think that really encouraged me to continue. And they had people there, nobody made me feel like I was a burden, erm, or that it was just too much work. Like I never felt that way.”

Although the inclusion and acceptance of people with impairments in the sport world has improved, rejection and resistance still exist (DePauw & Gavron, 2005).

According to Iedwab and Standefer (2000) sighted people who want to study martial arts need to examine their motivations and expectations when searching for martial arts school and an instructor, and this can be contrasted with the views of participants in this study. Students with VI only need to seek someone who is willing to teach them. Once they find an instructor who would teach them the athletes all reported that they felt happy, worthy and had increased global self-esteem, such as Sarah stated.

In addition, almost all the martial artists reported that socialization and being accepted by their peers was one of the main reasons for self-esteem improvement. The dojo has been identified as one community in which people need to work together. The martial artists reported respect among all in the dojo. The best example of this appeared through Jo’s words when he was talking about the dojo in which he could perform katas knowing that no one would laugh at him because he was respected by everyone in the dojo:

“Being in the dojo where you know you are safe. Where you know you can do these weird looking katas and stances where no one will laugh at you. You can just totally be yourself or be something that you cannot be elsewhere.”

In contrast to previous research, this study explored the mechanisms for self-esteem improvement through explanation of the social interaction improvement. According to David, the dojo should be an atmosphere in which the dojo members form a family. In such an environment, students with VI while working with partners improve socialization and respect for each other:

“You’re learning respect from day one. And you are building from there. That’s where it is. Erm, it could help socially as well. You have got that social integration. A good dojo will build, be like a family.”

As a result of the social acceptance by their dojo peers, martial artists with VI reported an improvement in their self-esteem. For instance, Alan found an improvement in his self-esteem only a few weeks after he began practicing judo. As Alan was accepted and trusted among his judo friends, in contrast to the school friends, he accepted his impairment and started liking the way he looked:

“After the first week I was addicted! I couldn’t wait to go back. After the second week I just kept wanting to go back, but after the second week I had made some really good judo friends, you know, in the judo club because judo’s a contact sport. You have to take hold of somebody to do it. And that was teaching me communication skills that I had never known before....I felt part of the community, I felt part of a club which was helping my self-esteem rise because I had mates and I had mates that weren’t teasing me about the way I looked. I actually started feeling good about myself for, you know, which I hadn’t apparently felt for a long time.”

Brian also reported that socialization in the dojo helped him to become confident and to talk to the others outside the dojo, which means creating new friendships. Brian was happy because the acceptance in the dojo motivated him to go back to the life he had before becoming VI and to find new friends:

“If I am accepted in the dojo, talking to people there, then it gives me confidence when I am outside the dojo talking to people, casually. You know, because there has been times where I have lost some, erm, sense of just talking to people casually due to the fact that I can’t see as well. But going to the dojo has given me that motivation again and meeting people and just speaking to somebody casually.”

This result supports previous findings that peer acceptance is a factor in the relationship between physical activity and self-esteem in adolescents (Daniels &

Lepaer, 2006) and college students (Wen-Ing, Chen-Yueh, Yi-Hsiu Lin, & Tien-Tze, 2012). The outcome does not only meet Smith and Osborn's (2003) recommendations to examine the interaction of peer relationship in the physical activity context but also provides the literature explanations for the peer acceptance across martial arts styles.

Moreover, in the literature review (chapter 2.5.3) I have agreed with Harter (2012) that self-esteem is a multidimensional construct and that different life aspects impact on global self-esteem. To my knowledge, all previous multidimensional measurements of self-esteem contain social acceptance as one of the self-esteem domains. However, it seems that the martial artists with VI were significantly impacted by being accepted since they suffered from discrimination and social exclusion regardless of their age (e.g. Alan as a child and Brian as an adult). Sociability scales across different life stages reflect, in some way, people's satisfaction, ability, and desire to meet new people and feel accepted (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986). This social acceptance may be a result of a contact between individuals which has been suggested by a contact theory developed by Allport (1954) to reduce prejudice and stereotypes (Slininger, Sherrill, & Jankowski, 2000) and improve social acceptance and comfort (Tripp, French, & Sherrill, 1995; Tripp & Sherrill, 1991). Peer acceptance in this group of the martial artists with VI is therefore significantly important in global self-esteem improvement and seems to be more important than the other domains of self-esteem. Analysing the data deeper, it appears that the martial artists who trained martial arts as adults (e.g. Brian and Stuart) were mainly concerned about going easy with others whereas Alan was seeking acceptance, and this is exactly what has been reported previously (Harter, 1985; Messer & Harter, 1986).

b) Trust

In addition to acceptance, instructors need to possess certain characteristics to effectively teach students with VI and consequently provide them the benefits that martial arts offer. An important issue stated by the martial artists is summarized in

David's argument that because blindness is based on trust there should be a bilateral relationship based on trust between the instructors and the students:

"All blindness is based on trust. And you must trust, erm, sighted people don't trust people enough either but you should learn to trust first."

This concept of trust was also highlighted by Mike, which helped him to develop martial arts skills and subsequently continue martial arts and earn its benefits:

"I was confident enough from what my sensei was doing with me."

A relationship between the instructors and the students is complex (Bloom, Durand-Bush, Schinke, & Salmela, 1998). Since the instructors occupy a dominant role in the students' lives (Jowett & Cockerill, 2003) the relationship based on the trustworthiness between students and instructors is crucial. Also, it has been identified as one of the three practical pedagogical principles when teaching people with impairments (Hart & Drummond, 2014). The instructors who know how to establish and build upon such relationships with their students, deliberately or not, contribute in self-esteem development of their students. According to Chen and Wu (2014) in such a relational context, affective trust in students' instructor increases the students' self-esteem over time. An explanation for possible self-esteem improvement can be found in the self-discrepancy theory developed by Higgins (1987). This theory assumes that such relationships based on trust provide the students an opportunity to rely on the instructors' support to accept challenges and pursue personal goals for personal improvement.

In addition, instructors used techniques to improve trustworthy student-student relationships. Working with sighted partners Jo improved his control, self-confidence, earned a new experience, but also built truthful relationships with the partners. These improvements were because of the mutual trust that injuries will be avoided:

"I always spar with sighted people. Erm, if, eh, it's a both scary and liberating experience to train and spar with sighted people. Because it test your own boundary, it test your, how confident are you really. Eh, eh, how much can you trust other people. How much do you trust your partner. And how much do you trust yourself."

Hard training seems to be an additional factor in social and trustworthy relationships improvement. Stuart argued that because of the hard work as a team, people cannot pretend to be nice. They trained and respected each other because they all worked hard and therefore karate helped him to find new friends through this hard training:

“We’ve worked hard together, we have vomited on each other, you know all the, the accidents that happen with training. You, you see quickly when you are training at that level, your inadequacies really fast, your shortcomings and your failures. And then since it’s, I suppose it’s a type of a rare bond where you know the persons bad qualities fast. Cause in the regular world, you can pretend to be somebody or you can act all very nice, but when you are really tired and you have to do more work, you know, your true self comes out. So once you see that you start developing a bond with the people because it’s real. There is no like prettying, making it look a little bit more pretty or disguising it or covering it up.”

This point demonstrates the importance of the martial artists’ role in gaining trust and not the environment. The martial artists have to work hard and not be lazy in order to improve their relationships and be trusted by the dojo peers. Thus, it is not surprising to find that martial arts friendships exist outside the dojo such as Mike stated:

Mike: “Being in with the karate club and stuff like that, you gain friends. Erm, and not only do you gain friends with your club, but you gain friends with people from other martial arts in the club.”

Me: “Are you meeting together outside the dojo?”

Mike: “Yeah!”

c) Motivation/supporting

In addition to acceptance and trust, supportive and motivating instructors may help people with VI to feel included. Paul for example mentioned how his two instructors were motivating him:

“They were very good, both of them. Because they knew about my impairment and they said the same thing as me, they said try to use it to your advantage that was the phrase they used. Try to use it to your advantage.”

Stuart had a similar experience to Paul’s, whereby his instructors said:

“I can go back to what my sensei said. And he said, ‘everybody’s got their issues’ right?”

Further, Alan clearly stated that because of such acceptance, support, encouragement, and instructors who were willing to teach him, his life dramatically changed:

“When I was introduced to somebody that was visually impaired, John [Alan’s 1st instructor] was a forward thinking coach and said, ‘so what...so what if Alan’s visually impaired, what’s the worst that can happen? Get him on a judo mat and we can see what he can do’. Erm, and to me that was a pivotal part of my life. That was the first time that anyone actually said to me, ‘it doesn’t matter. You now, come and break some barriers down.....They [parents] took me along to a local judo club and they introduced me to this guy[instructor], erm, who along with my dad and my mum, were...was the biggest inspiration in my life I think I have ever met. Okay so I met the coach who, that was gonna to change my life.”

This indicates that such supportive attitudes from the instructors may help in self-esteem improvement. The instructors’ motivation appeared to be a factor in boosting their self-esteem. Thus, this outcome seems to support ‘Teacher Expectancy Theory’ which suggests that the instructors’ belief in their students abilities will positively reflect on the students (Sherrill, 2004). Results of the study that aimed to determine the relationship between self-esteem and motivation to succeed of the 467 sighted elite athletes showed a significantly positive relationship between these two variables ($r = 0.321$, $p = 0.001$) (Soye, 2011). Furthermore, this result supports Wang, Koh, and Chatzisarantis (2009) who claimed that there is a relationship between motivation and physical self-worth which impacts global self-esteem.

5.3.2.2.2.1.1 Summary of the social domain

According to the above results, social self-esteem of people with VI may be improved through acceptance, trust, and motivation. However, it seems that acceptance was the first and most important step for social self-esteem improvement as it provided the martial artists a sense of feeling valued and respected. Moreover, instructor-student, student-student trustful relationships, and motivation also increased this sense, as the martial artists were part of one team in which they could practice sparring with their dojo peers, such as everybody else. Participants were encouraged to continue martial arts practice regardless their impairment. Importantly, the current results suggest that instructors are the most important factor in developing

social self-esteem and therefore a particular attention should be given to the instructors and their teaching strategies which will be expanded in chapter 6.

5.3.2.2.2 Intellectual self-esteem

Another domain that may impact global self-esteem is intellectual self-esteem. Martial artists identified this domain within the following three themes of achieving self-potential, achievement through training hard, and body and spatial awareness.

a) Awareness of achieving self-potential

The martial artists reported that the philosophy of martial arts is not based on competitions. By contrast, its practice aims to improve the self. One of the mechanisms that causes self-improvement (including self-esteem), as highlighted by the martial artists, is developing a potential of the martial artists instead of comparing his/her skills to the others. Because of this self-improvement and achieving higher belts Tim improved his self-esteem:

“When I came to karate and found that wasn’t competitive really either, that’s one of the things I really liked about it. You know, in as much as it’s really about you developing your own skill and your own ability.....I really enjoyed that because I...you, you were sort of competing but you were competing against yourself. So you were, you were graded but you were individual graded, you know, on your own, own ability. Not on whether you could beat somebody else at it. And I, I found that an aspect of it which I really like.”

Moreover, compared to the other exercises or sports, martial arts students are assessed through the grading system that positively reflects on the students’ self-esteem. Talking about taekwondo Paul expressed his feeling about self-improvement and obtaining a black belt as follows:

“It made me realize I could do something important not only to get to the black belt level but then I could pass on my own skills and teach other people and this made me feel good.”

Paul also expressed his feeling when he received a black belt:

“It boosted my confidence because on the way to black belt I actually thought I would never get there because of my impairment. But I get in fight with those thoughts and using what I have learned from martial arts built my confidence using what we call the taekwondo or martial arts ought which is principles that

you hear from taekwondo and karate and I was using those principles that I learned to keep me going. So yes, when I got my black belt it gave me a huge boost I didn't just feel confident I felt super confident, I suddenly felt I could do anything."

Within martial arts practice, students focus on self-improvement and do not compare themselves to others. A grading system is an external approach that provides a structured way to experience success (Winkle & Ozmun, 2001). Following the grading system, martial arts students with low self-esteem experience success through their own accomplishments and not by comparing themselves to others, reflecting a mastery approach (Gray, et al., 2009). According to Wang, Won Chia, Lochbaum, and Stevenson (2009) participants who practice activities of this kind seek for self-improvement and invest their effort in mastering a certain activity. At the same time, this reflects their martial arts skills development. When the participants have awareness of achieving a self-potential challenging goals through mastery attempts, they will more likely receive positive support by significant others, show higher levels of perceived competence, and feel a sense of internal control according to the competence motivation theory (Harter, 1978). Getting a higher belt indeed reflects the perception of competence. All this process contributes in self-esteem and self-confidence improvement (Winkle & Ozmun, 2001). Therefore, Kosma, Cardinal, and Rintala (2002) argue that instructors working with people with impairments need to establish mastery oriented motivational climates in order to increase their perceived competence, and that is what the nature of martial arts is.

However, David was more cautious regarding the grading system arguing that martial arts should aim at skill and self-improvement and not necessarily achieving higher belts regardless of its benefits:

"Grading is degrading or can be degrading. It means to, if you think about all the time you get disillusioned because that isn't what martial arts is all about.....It's not about who can knock the next one out more than the other one, it's nothing to do with that. You know, to not appear to be fighting, non-fighting. The skill comes in because of that. Erm, aikido is non-fighting and that's why it is not a sport, but you haven't come up against somebody who has to look out themselves with it then it's not very pleasant to come off of, the other end of it."

Although I do agree with David's idea, through the grading system the participants' sense of achievement becomes more externally visible as Tim and Paul stated. In

contrast to the previous statements of David and Jo, Alan was a world champion and he reported that because of hard training he became a world champion and subsequently improved his self-esteem. Alan felt happy because he was the world champion, which was a result of hard work over years:

“The competitions gave me my reward of the medals I was winning. But it was all because of hard work and the philosophy of hard work gives you results that John and Roby gave me as coaches. And that is, you know, all this stuff about judo is the gentle way and all that sort of thing, yeah right, you know. You know, yeah it might be called that, but you try it [laughs] you know. You know, it’s quite tough, you know. Erm...so yeah the philosophy took a certain part of my life in the judo world but the philosophy of life in respect to working hard gets results, that was what I lived by.”

Me: “But isn’t there a relationship between the philosophy of judo and working hard?”

Alan: “It’s, it’s the same. Yes, exactly. But that’s not just the philosophy of judo. It’s the philosophy of martial arts. Work hard, you get results. Give commitment, you get results.”

Hard work is not only necessary to gain the trust of the dojo peers, as Stuart stated, but also for achievement, regardless if the achievement is a form of championship winning, getting black belt, or self-improvement. Another aspect of martial arts philosophy is that students always learn regardless of the level or belt. Learning new skills had a positive influence on Richard’s self-esteem development:

“Oh benefit me, oh. Eh, yes. A few different ways. One is, erm, you know, when you work out you feel good, you feel better. So that in itself is a plus. Just the fact that you’ve done something that you’ve never done before. Or you’ve done something and that you thought that you would never get and all of a sudden you’re doing it.”

Again, this example supports Harter’s (1978) competence motivation theory which assumes that when the mastery attempts are perceived successful through optimal challenges, the martial artists will more likely receive positive support by significant others, show higher levels of perceived competence, and feel a sense of internal control. As a result of hard-work, self-improvement, and learning new skills the participants felt better. The competence motivation theory suggests that when the harder challenge is overcome self-esteem is more likely to be significantly improved. This development is a result of both the philosophical concept of martial arts (e.g. Paul) and competitive martial arts (e.g. Alan). Self-esteem therefore has been

described as a relationship between one's achievements and one's aspirations (James, 1983). He uses the following formula to clarify his idea.

$$\text{Self – esteem} = \frac{\text{Success}}{\text{Pretensions}}$$

This means that achieving success and avoiding failure maintains self-esteem. Emler (2001) further argues that this formula identifies the importance of pretensions in that success cannot be measured objectively but subjectively and this is what the results of this study showed. Although Mruk (2006) argues that a disadvantage of this approach is that a person may achieve success in areas that are undesirable, the criticism cannot be applied in this example since the martial artists considered martial arts an important segment of their life.

It is important to note that this mechanism interrupts with physical ability and physical self-worth perception improvement, although no direct quotes support the improvement of physical self-worth perception. However, it is difficult to imagine that the world champion was not aware of his physical abilities although he did not mention this clearly. Moreover, hard work is expected to develop physical ability but importantly also improves a discipline and self-control which was one of the benefits that Brian had gained from doing martial arts. Because of that discipline David found “harmony” and felt happy and this has appeared to improve his intellectual self-esteem because of that:

“It is a discipline, I don’t leave home for work or, I used to not really have help at work until I done at least five hundred to a thousand cuts a day.....Aikido to me is the, my main martial art that I do. And the reason I do it because I lived the way of harmony. I lived the way of, erm, life. You know you can get in terrible problems, erm, where you get lost, something like that. No use losing your rag, you don’t, it doesn’t solve the problem, does it?”

Me: “No.”

David: “So you eventually find a way round it, and solve the problem that way. If you didn’t do aikido or something like that, you wouldn’t be in harmony with that. You would lose it, you would lose and a, you would panic and get in a right state, yeah, you know. And I think it’s a good mental thing, it’s a good psychology.”

This means that through the discipline there is physical improvement and the martial artists may perceive their physical ability improvement. Accordingly, their physical self-worth may be improved.

b) Body and spatial awareness

Another aspect of intellectual self-esteem improvement through martial arts is increasing each of body awareness and spatial awareness. Because of iaido practice Scott reported that he developed his awareness and intellectual self-esteem:

“Iaido is the, is a Japanese martial art. It’s based off, erm, ways of drawing the sword and performing kata which, you know, it’s...just you and its forms and it’s knowing how to discipline yourself and to focus your mental, eh, mind. And, erm, it’s essentially, you know, yoga or tai chi with a Japanese sword. But it was, you know, that was really interesting and I found as a blind person that really helped me a lot, erm, in terms of body awareness, eh, being aware of where I was moving, how I was moving. Erm, and what to do with, eh, feeling things backward, you know. Feeling through an object that was extension of myself, and in this case a sword right.”

According to il-hyeok (2000) martial arts training are specific in repetitions of one technique, punch, or kick many times accompanied with an appropriate breathing and muscular control which results in improving both physical and mental discipline. Furthermore, the body awareness is very important for Richard since he becomes more confident to travel across New York independently and feels happy because of that:

“I use my martial arts experience now in everyday life especially, eh, I live in New York City. I live on X but I travel into Y, New York. And any given day if I’m on the subway or the train or the street even, it’s always crowded. So I’m always aware of where I am, who I’m with, who’s around me.”

According to Sarah, martial arts theory improved her intellectual self-esteem since she always has to be aware of herself and the environment:

“What I learned from krav is that, erm, one of, of, one of the first points of self-defence is not being what my instructor calls, erm, in stupid places with stupid people. Like I am a young, I am a young woman so being in a bar full of, you know, wild drunk people is just not safe for me. So don’t be there, you know. It’s just, it’s taking that precaution and locking your doors. Making sure that, you know, you are staying alert while you’re walking down the street. Not, you know, walking up to cars with people inside them that you don’t know. It’s just taking

those sorts of precautions. That right there is self-defence because you don't have to, you're, you're protecting yourself by being smart about your situations and the choices you make. So yeah your mind always stays engaged."

Interestingly, intellectual self-esteem improvement was expressed only by those who started martial arts as adults. In the self-esteem scales, intellectual self-esteem was developed only for the college students (Neemann & Harter, 1986) and adults (Messer & Harter, 1986) and not for children and adolescents (Harter, 1985, 1988) highlighting the domains of feeling smart, understanding things, and feeling intellectually capable. Intellectual self-esteem improvement helped the participants to be more independent in their daily movements, solving the problems more effectively, and choosing correct decisions which caused them happiness.

Furthermore, in the literature review (chapter 2.6.2 & 2.6.3) I highlighted the importance of martial arts philosophy and the participants in this study believed that learning philosophical aspects of martial arts, either verbally or through the training impacted positively on their self-esteem. Thus, and according to the current study results, it seems to suggest that learning, understanding, and application of the martial arts philosophy is a requirement for global self-esteem improvement as it stimulates the increment in intellectual abilities. Jo argued that knowing the philosophy behind applied martial arts is important since that knowledge improves the performance per se. He used a following metaphor to express his point of view:

"Is it important for you to know how a car works, like, like, eh, how the engine work and how the car is put together, more or less. I mean you can drive even if you don't know it, you know. You can be a driver and, eh, never know how a car really work. Why do you need to put gas in the car? Why do you need to have oil change? But knowing those things will probably make you a better driver, yeah. Will probably make you more responsible and probably make your car last a lot longer. It's the same thing."

Sarah supported Jo and felt that both the physical and philosophical aspects of martial arts improved her psychosocial characteristics:

"Knowing that I am capable of it would be the physical side. And knowing there would be, erm, consequences of using that, of using these, eh, techniques. So, erm, knowing the outcomes of it. Erm, I do understand that and I respect it. Erm, so I think that both the theoretical and the physical play a really big part in, erm, how I see things and what I do."

These two quotes clearly address the importance of learning and understanding theoretical aspects of martial arts. This provides martial artists an opportunity to follow martial arts philosophy of trying to achieve their best, work hard to get the achievement, and be disciplined. Therefore, it seems reasonable to argue that theoretical parts of martial arts are important in applying the mechanisms for intellectual self-esteem improvement.

5.3.2.2.2.1 Summary of the intellectual domain

Intellectual self-esteem of people with VI may be improved through increasing their awareness of achieving self-potential. Martial artists felt successful in mastering skills that needed hard training and consequently felt intellectually competent. It is important to notice that participants could be aware of their skill improvement because of the grading system which appears to be a specific component of martial arts philosophy. In addition, possessing self-defence skills boosted participants' confidence to travel independently and to be aware of their surroundings.

5.4 Implications, applications, and limitations

This study will hopefully be a starting point in the investigation on the exercise causes and mechanisms for global self-esteem improvement across different population groups and exercise types. For the first time, martial artists (with and without VI) had an opportunity to talk about their experiences in martial arts, the benefits they acquired, and its causes. Importantly, the interviews identified additional issues that were not within the main purpose of the study such as a fact that people with VI have not been treated equally and have not been accepted for decades. Bullying, teasing, and exclusion of people with VI across all age groups still exists regardless of continued calls for equal treatment and the importance of inclusion. Nevertheless, the current results may increase awareness of individuals with VI who are interested in doing martial arts about what to expect in martial arts clubs and to determine all needed factors for self-esteem improvement. Moreover, presented examples of interviewed martial artists will hopefully increase self-beliefs of people with VI about their abilities regardless their impairment. This particularly important as previous studies found that people with VI do not participate in

exercises because of lack of confidence (Stuart, et al., 2006) or personal perception of disability (English Federation of Disability Sport, 2013).

However, this study did not investigate whether practicing only one martial arts component (e.g. kata) would be enough to improve global self-esteem or at least intellectual self-esteem. This means that from the present results we do not know if the participants performed only kata, within the solo performance, would it impact their global self-esteem and/or self-esteem domains such as physical, social, and intellectual. Another limitation of this study is a wide age range. People with different ages may have different stories due to having more/less experiences across different martial arts styles. Although all participants have practiced “hard” martial arts styles I failed to interview any “soft” style practitioners, such as tai chi. Interviewing tai chi practitioners would probably add a different perspective about the mechanisms for self-esteem improvement, namely in the context of interaction among students and physical improvement. This will probably identify whether the components of the “soft martial arts differently impact self-esteem or its domains compared to the components of the “hard” martial arts styles and this is what researchers need to consider for a future work in the field.

5.5 Chapter summary

This study aimed to explore the mechanisms/reasons for self-reported self-esteem improvement of martial artists with VI following a narrative approach, namely short autobiography. Data collection was conducted through twelve ($n = 12$) semi-structured interviews with martial artists who were VI. Following thematic and narrative data analysis, two categories of the themes existed inductively; non martial arts related themes and martial arts related themes.

From the previous discussion it clearly appears that the martial artists benefitted from martial arts practice in improving their self-esteem, namely those who had depression/low self-esteem issues. However, the reasons for low self-esteem were particularly due to being teased and bullied, social exclusion, and denying the impairment. Regarding the adults, the present results support previous findings that adults with VI have low self-esteem (Papadopoulos, et al., 2013). Talking about

children and adolescents, different findings exist. While some of the previous researchers argued that children/adolescents with VI have low self-esteem (Pierce & Wardle, 1996) the others claim that not enough evidence exists to support that view (Obiakor & Stile, 1990). Although it was found that children and adolescents with VI do not have lower global self-esteem than their sighted peers (Griffin-Shirley & Nes, 2005; Huurre, 2000; Kef, 2002; Shapiro, et al., 2008) the martial artists from my study stated that they were not happy being bullied and teased which caused them low self-esteem during their childhood or adolescence. The results indicate that the self-esteem of children with VI is related to their childhood experience rather than VI per se particularly when we take into account that sighted children who were bullied suffered from low self-esteem (Rigby & Slee, 1993; Williams, et al., 1996).

Although the study participants tried different exercises, they decided to continue martial arts that positively impacted their psychosocial domains, namely global self-esteem. The present study investigated the mechanisms and factors for the global self-esteem improvement as the following map (figure 5. 2) clearly demonstrates based on the martial artists' stories.

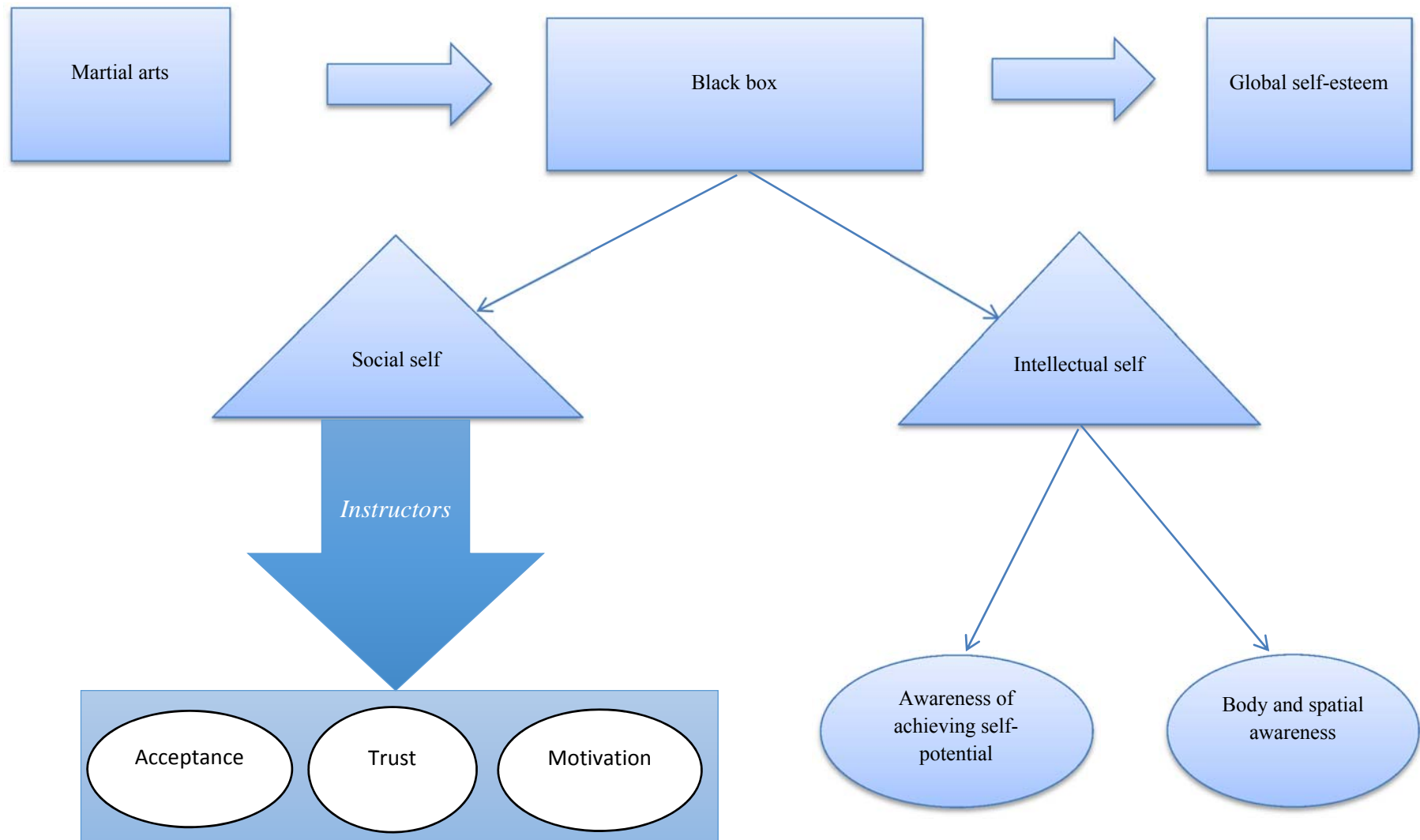


Figure 5.2: Conceptual Map of Self-esteem Improvement Mechanisms according to the black box approach. Square= self-esteem improvement, triangles= three main themes for self-esteem improvement, circles= concepts of the themes

In the map above I presented the mechanisms that lead to self-esteem development as the martial artists with VI reported directly or which existed through data analysis. Each of these two mechanisms, social and intellectual self-esteem, contains a variety of subcategories and associated concepts. Interestingly, these mechanisms are psychosocial, which supports Buckworth et al. (2013) argument that the positive effects of exercise on self-esteem are likely to be a result of psychosocial (e.g. sense of self-acceptance and sense of self-belonging) rather than biological (e.g. genetic influences) mechanisms.

However, from the current study and supporting previously claimed arguments (Iedwab & Standefer, 2000; Jones, et al., 2006; Vertonghen, et al., 2012) instructors certainly appeared to be within one of the most important concepts for psychosocial effects that needs to be critically discussed in the next chapter. The next chapter will present the results of interviewing 6 instructors in which they will explain their perception about the benefits of martial arts that people with VI may have, the strategies they use to deliver those benefits, and/or the strategies to overcome psychosocial challenges that people with VI face. This shall hopefully also provide us with information as to whether the instructors support the martial artists' arguments regardless of the mechanisms for self-esteem improvement and afford better understanding about the mechanisms of self-esteem improvement in people with VI.

Chapter 6: Strategies Followed by Martial Arts Instructors for Self-Esteem Improvement in Martial Artists with VI

Chapter overview

This chapter aims to explore the strategies that martial arts instructors utilize to improve self-esteem in their students with VI. I will start chapter 6 with the aims of the study and detail the study methodology providing a critical justification for following interpretative phenomenological analysis (IPA). At the end of the methodology section, I will demonstrate a step by step data analysis procedure. This will be followed by presenting profiles of the martial arts instructors that were interviewed in the study. I will also critically discuss the themes of each of the following nodes respectively; a) personal perception about people with VI, b) reflexive coaching philosophy, c) self-esteem improvement strategies d) and the instructors' advice to other instructors. The chapter will be completed by a summary of the results presenting a conceptual map of the strategies the instructors used for self-esteem improvement in martial artists with VI.

6.1 Aims

The results from the previous two chapters (4 & 5) showed that martial arts practice improves self-esteem in people with VI and the reasons for the improvement, as the martial artists with VI reported, are rooted in the following two key elements: social and intellectual self improvement. Supporting Iedwab and Standefer (2000) the martial artists perceived their instructors as a fundamental element for any improvement since the instructors first of all have to accept the students, motivate them, create relationships based on trust, and be creative and open-minded in constructing and running the sessions. Moreover, in the previous chapter (5.3.2.2.2.1) the martial artists stated that instructors were the major factor to motivate them to continue practicing martial arts and to improve their self-esteem. This means that students cannot achieve any psychosocial benefits of martial arts by practicing on their own; instead, they need a proper understanding of martial arts from a good instructor (Il-hyeok, 2000). A similar result was also reported by Jones et al. (2006) who found that the instructors were one of the most important factors for enhancing

student motivation to practice martial arts due to the instructors' teaching and communication styles. Thus, one of Jones et al.'s (2006) conclusions was that instructors are more important than the martial arts style that people choose to practice.

While in the previous chapter (chapter 5) the martial artists with VI told narrative stories about the impact of martial arts practice on self-esteem improvement, the present study aimed to describe and interpret the essence of lived experiences expressed by martial arts instructors following an interpretation phenomenological analysis (IPA) (Creswell, 2013). The instructors who had experience in teaching people with VI martial arts talked about their perception of the benefits that the students with VI gained from the martial arts practice and the strategies they used to deliver these benefits. This is important since a role of the instructors is not only teaching individuals how to perform certain techniques but also to consider personal dimensions of teaching, which includes additional tasks (Bloom, et al., 1998) such as instructor-student relationships. These aspects are important since the instructors need to be aware of their teaching methods in order to improve the self-esteem of their students (Wang, et al., 2009). This chapter therefore presents a further study which tries to answer the third question:

- What are the strategies that martial arts instructors utilise to improve self-esteem of martial artists with VI?

6.2 Methods

6.2.1 Experimental design

This study aimed to investigate the strategies that martial arts instructors utilize to improve the self-esteem of their students with VI. This means that the study sought to answer 'meaning questions' (e.g. what is happening?) which requires a deeper understanding of a phenomenon under investigation. In contrast to other qualitative approaches, phenomenological studies aim to find out what a certain phenomenon means through description and/or interpretation of the common meaning for several individuals of their lived experiences of the phenomenon (in this case martial arts).

According to Creswell (2013) individuals who have experienced the phenomenon can tell a researcher the essence of the experience, and these stories are consistent with what they experienced and how they experienced it. This means that phenomenology aims for a deeper understanding of the meaning of participants' experiences (van Manen, 1990). Phenomenology provides knowledge through the understanding of shared meaning of a phenomenon as it is experienced by the person (Giorgi, 1997; van Manen, 1997). The focus on the participants' experienced meaning instead of a description of their behaviours distinguishes phenomenology when comparing to the other approaches such as narratives approaches (Polkinghorne, 1983).

However, more than one philosophical school of phenomenology exists, though two types of phenomenology are used more than other approaches; descriptive phenomenology (pure description of lived experience) and IPA (Lopez & Willis, 2004). They further detail that descriptive phenomenology assumes that a researcher must strip his/her consciousness of all knowledge, theories and experiences related to a phenomenon and thus cannot influence the object of the study, whereas the IPA assumes that a theory is used to generate hypotheses to be tested and thereby researchers become able to take decisions about their sample, participants, and questions and to generalize the descriptions if the experiences were identical. Whether a researcher needs to utilize descriptive phenomenology or the IPA depends on the aims of the study as studies in the field of sport and exercise psychology have shown.

6.2.1.1 Phenomenology in sport and exercise psychology

Although a phenomenological approach (either descriptive phenomenology or IPA) has been identified as a useful approach for a better understanding of exercise experiences (Kerry & Armour, 2000), a small number of exercise psychology studies have used phenomenology (Allen-Collinson, 2009; Nesti, 2011). Indeed, the literature review also supports Nesti that within published research in the field of exercise psychology, it is not common to find the detailed arguments explaining the differences between phenomenology and other designs of qualitative research. I will present four studies from the field of sport and exercise psychology, and this will

hopefully provide a clearer picture about the facets of the phenomenological approach.

Descriptive phenomenology was used by Berry, Kowalski, Ferguson, and McHugh (2010) who aimed to investigate body self-compassion of five young women ($n = 5$) who identified themselves as exercisers. The authors utilized interviews across two stages; one-to-one semi-structured interviews that lasted between 60 and 90 minutes and a focus group phase that lasted about 90 minutes.

By contrast, McDonough, Sabiston, and Crocker (2008) conducted an IPA study to examine changes in body image and social support experienced by fourteen ($n = 14$) women with breast cancer who participated in the first year of dragon boating programme design for breast cancer survivors. All data was gathered through semi-structured interviews. All information was coded followed by grouping them into the themes that were regrouped and then interpreted. Furthermore, IPA was used by Bruner et al. (2008) to explore the transitioning experience of young athletes entering elite sports. The authors conducted two focus group interviews using a semi-structured interview guide with eight ($n = 8$) rookie male ice hockey players. In addition, Lundkvist, Gustafsson, Hjälm, and Hassmén (2012) aimed to explore burnout experiences in elite football coaches through investigating the factors leading to burnout and symptoms the coaches experienced. The authors conducted eight semi-structured interviews following the IPA. Semi-structured interviews that were utilized in the previous two studies have been recommended as one of the most effective methods for data collection in IPA studies (Larkin, Watts, & Clifton, 2006; Smith & Osborn, 2003). Lundkvist et al. (2012) analysed data inductively and explored meaning units. The emergent themes that had been identified were reorganized in a more coherent order to the themes.

The above four studies used a certain phenomenological approach according to the aims of their study. Since the aim of this study in this thesis was to identify strategies that martial arts instructors follow in teaching people with VI and how these strategies reflected on the martial artists' self-esteem, the IPA was utilized. I aimed to identify the strategies according to the instructors' experiences and to find the evidence for the effectiveness or their techniques that go beyond the description. I

sought to get descriptive information of the strategies in addition to the link between these strategies and self-esteem, interactions in the dojo, relations among martial arts students, and a student-instructor relationship. All these factors needed to be explored since self-esteem has been described as a multidimensional construct (Marsh, 1990). It was expected from the instructors to express the strategies they used when teaching people with VI martial arts and their personal perceptions of the effect of these strategies on self-esteem in people with VI. As IPA focuses on the process rather than the concrete causes or consequences (Smith, Flowers, & Larkin, 2009) which have been identified in the previous study (chapter 5), IPA seemed to be the most appropriate approach to use (Smith, 1987; Smith & Osborn, 2003). Consequently, every IPA study seems to contain descriptive information whereas a descriptive phenomenology study does not contain additional relationships in different contexts. Indeed, what distinguishes descriptive phenomenology from IPA is the way in which data are generated and how the findings may be used to argue knowledge (Lopez & Willis, 2004). IPA aims to investigate in detail processes through interviews in which participants share their experiences (Brocki & Wearden, 2006) and a researcher explores participants' experiences, understandings and perceptions (Reid, Flowers, & Larkin, 2005).

To summarize, as IPA focuses on the experienced meaning and contains additional relationships in different context, IPA was selected. This decision was in agreement with this study, which aimed to investigate the strategies for self-esteem improvement in martial artists with VI.

6.2.2 Participants

Due to the very limited population of martial artists with VI it becomes clear that the number of their instructors can be only equal or less than the number of martial artists with VI. While Reid, Flowers, and Lankin (2005) suggested recruiting a sample size of 10 participants for the IPA designs, Jones et al. (2013) claimed that even one participant can be sufficient to provide in-depth information about the “phenomenon” expanding the idea that the sample 6 to 12 participants has been considered as the most significant sample to provide the required information in phenomenological studies. By contrast, Smith, Flowers, and Larkin (2009) suggested

that a sample size between three and six participants is sufficient for IPA studies as such numbers can reflect similarity and differences between participants. Smith and colleagues further recommended PhD students initially to conduct a single case study, then undergo a detailed examination of three participants, and for the purposes of the last study in the PhD to conduct eight interviews.

However, if data saturation is found to be met, additional information would not add significant contribution to knowledge (Guest, et al., 2006; Morse, 1995). This supports a general idea of the required number of participants to be recruited for qualitative studies that was expanded in chapter 5.2.2.

6.2.2.1 Inclusion and exclusion criteria

All instructors had to be advanced martial artists and have teaching experience with people with VI. All recruited instructors had to be working with the martial artists with VI at least over one year, since this period seemed to be enough to determine whether a change in self-esteem occurred. They had to be involved in teaching people with VI at the beginning of their martial arts practice and when they became advanced martial artists. I believe that considering these criteria enabled an instructor to report the difference that he/she noticed in psychosocial and behaviour changes during the martial arts path of a person with VI. Moreover, instructors had to have a certificate recognized by a particular martial arts association that they were qualified to teach martial arts. This criterion would relatively assure that the instructors possess a minimum knowledge about teaching/coaching principles and methods although Nash and Sproule (2012) claimed that any individual who is involved in providing coaching is a coach. In addition, instructors from different martial arts styles were invited to participate in the study. Those who spoke languages I could communicate in were included as well.

6.2.2.2 Procedure for recruiting participants

The total number of recruited instructors was six ($n = 6$). These instructors represented different martial arts styles (table 6.1)

Table 6.1. Number of recruited instructors in each martial arts style.

Martial arts style	Krav Maga	Karate	Taekwondo
Number of instructors	3	2	1
<i>Note:</i> Only the martial arts style that was offered to people with VI was counted within this table although some of the instructors were practicing/teaching more than one style			

I previously reported difficulties I had recruiting martial artists with VI and I also faced challenges in recruiting participants for the purposes of this study. These challenges were due to the limited number of the instructors and an inability to communicate in one of the “three” languages. A number of the organizations and individuals I contacted in order to recruit participants were previously presented in the chapter 5.2.2.2 and table 5.3.

Furthermore, official contacts with instructors started at the end of April 2013 and lasted until the middle of February 2014 when the last interview was conducted. All participants were contacted by email and were informed about the aims of the study. Those who did not reply were contacted after two weeks from the day of the first contact. Similarly to the martial artists with VI, once an instructor completed the interview, he/she was asked to suggest others who could be interested in this study (Stirling & Kerr, 2013).

6.2.3 Data collection

Good qualitative research is the one that uses methods that are the most appropriate for the study purposes (Bisit, 2010). In IPA, interviews are considered to be a primary form of data collection (Creswell, 2013). As different interview types exists, Smith et al. (2009) suggested that semi-structured, one-to-one interviews have been considered as the most appropriate data collection method in IPA studies. The other most popular approach, observation, could not be followed due to the geographical

limitations as most of the contacted participants were not from the UK. In addition, this study aimed to investigate the strategies that martial arts instructors used when teaching people with VI which appeared not to be possible to be captured in questionnaires (larger sample size) (Darker, Larkin, & French, 2007). Furthermore, Smith (2004) argued that IPA was developed to allow the participants to use their own terminology and conceptualizations which would enable researchers to produce a theoretical framework.

Therefore, as studies that were presented in the field of exercise psychology (e.g. section 6.2.1.1) interviews, namely semi-structured interviews, were used as a data collection method. In contrast to the descriptive phenomenology studies that mainly use unstructured interviews, IPA researchers have on the whole used semi-structured interviews (Jones, et al., 2013; Larkin, et al., 2006; Smith, et al., 2009).

6.2.4 Procedure

For the purposes of this study I used semi-structured interviews with six ($n = 6$) martial arts instructors. The questions were focused on the main topics of the interview but were flexible to change as the interview developed (Smith & Osborn, 2003). Prior to the interview every participant completed a written information and consent form also allowing all interviews to be audio-recorded (Appendix H). The interviews were conducted by phone or Skype due to the cost and geographical limitations. In agreement with IPA, the questions were not leading, manipulative, or closed but direct towards meaning (participants' understanding and experiences), descriptive, narrative, structural, contrast, prompts, and probes (Smith, et al., 2009). However, overall, the questions focused on the following four topics. a) their experience in martial arts as martial artists (e.g. How did you become engaged in martial arts?); b) their experience in teaching sighted people (e.g. Why did you start teaching martial arts?); c) their experience in teaching people with VI (e.g. Why did you start teaching people with VI in particular?); and d) training consideration (e.g. Can you give me some examples of some difficult situations in training people with VI). Appendix "I" provides more questions guidelines that were used with the participants. An interview guide developed by Cote, Salmela, and Russell (1995) was adapted for training consideration themes.

My credibility to conduct interviews with the instructors came from the following arguments that were mentioned by Vallee and Bloom (2005): my experience in teaching martial arts for people who are VI, teaching sighted people at different skill levels, possessing knowledge of jargon, knowing martial arts instructors who are working with people with and without impairments and familiar with their teaching strategies, in addition to attending a qualitative methodology course.

6.2.5 Data analysis

For IPA study designs Gadamer (2004) argued that there is no right and wrong data analysis method in IPA studies. However, to assure the correct data analysis method I followed guidelines developed by Smith et al. (2009) that have been used by others (Lindsay, MacGregor, & Fry, 2014; Lundkvist, et al., 2012; Stewart & Rae, 2013) who conducted IPA studies. All of the following four stages were conducted using NVivo 10.0 software.

1- Reading and re-reading:

This phase included reading the data in order to understand the general idea of the interview. This phase came from data transcription and reading the transcripts several times in order to ensure that the participant became the main focus of analysis. This stage helped me to determine the way participants think and understand a particular issue. During this phase, I constructed comments and notes that expressed similarities and differences, echoes as well as contradictions that the instructor was saying. The comments were either descriptive or explanatory.

2- Developing emergent themes

Through the comments, namely explanatory comments, I could identify themes that were inductively emerging. The themes that were developed at this phase reflected an important point that appeared across the common comments but at the same time were influenced by the whole interview. A particular focus was given to the themes that were relevant to the study aim.

3- Searching for connections across emergent themes

After I had established the themes, I ordered them chronologically. This was followed by reorganising the themes according to their relevance to the purposes of

the study and consequently some themes were excluded (considered as stand by themes) whereas the others were incorporated. Smith et al. (2009) suggested different ways of successfully analysing this phase, for example, abstraction, polarization, contextualization, function, and numeration. However, once I have read and understood these approaches, I did not follow one particular approach, but varied approaches according to the data. As a result, the themes were reordered mostly following abstraction (identifying patterns among the themes and developing a sense of these themes into one theme) and contextualization (identifying narrative elements focusing on narrative moment). In addition, within this phase, the themes were named.

4- Analysing the next instructor

Once I completed data analysis of all six instructors I tried to find out relevant themes across the instructors. Therefore, I reconstructed and reorganized themes that produced a sense of the new themes.

6.2.6 Trustworthiness of interviews analysis

In the line with previous study (chapter 5) I followed the same strategies for meeting the trustworthiness criteria. Credibility was examined through peer debriefing (Noble & Smith, 2015; Sparkes, 1998) as I had constant meetings with two supervisors who were asking me questions regarding the methods, meanings and interpretations of data (Lincoln & Guba, 1985). Moreover, confirmability was established following internal auditing and constant comparison of data and possible interpretations through data analysis. In addition, transferability was addressed using thick description through interconnecting the details and providing quotes (Creswell, 2013). This strategy was employed to establish transferability so the readers can judge transferability.

One of my supervisors conducted a peer review to verify the data analysis. The peer reviewer examined randomly selected interviews (33%) of data and compared his coding to the one that was previously conducted by me. Also, the peer reviewer examined the coding units created from the data and matched each of these themes with a theme previously established by me. A reliability rate 90% was obtained.

Discrepancies were discussed until a consensus was achieved regarding the classification of coded units under the appropriate themes. This process of examining the trustworthiness of the research study was suggested by others (Lincoln & Guba, 1985; Lundkvist, et al., 2012; Sparkes, 1998).

6.3 Results

6.3.1 Introducing the participants

All of the recruited instructors in this study shared the experience of teaching people with VI from the beginning of the students' practice until the students became advanced martial artists. Below is a summary of the instructors' profiles which will introduce the reader to the participants and consequently enable the reader to have a better understanding of the illustrated quotations.

Stephen (pseudonym)

Stephen has been teaching Brazilian jiu-jitsu for one year. His main philosophy of teaching is based on simple methods in which all students have fun. Stephen started teaching a student with VI at the beginning of his coaching career. Stephen believes that his student with VI improved his self-confidence and social relationships initially because of being treated equally in the dojo and his self-motivation to learn martial arts.

Mark (pseudonym)

Mark has been doing krav maga for three years. In constructing the sessions Mark is led by two core principles: 1) He uses teaching techniques that may be applied in real life situations and 2) He focuses on developing a positive subjective perception of the students about themselves. When a student with VI came to his class, Mark changed his teaching style to mainly focus on a descriptive explanation of the techniques and this was done so that all students received the same instructions in the same way regardless of their sight. Taking into account individual differences that exist among his students, Mark mentions that he treats all of his students the same way and he tries to teach them using the same inclusive pedagogy. As Mark reported, he is now

sure that his student with VI became more confident and comfortable in the dojo and has created new friendships.

Ian (pseudonym)

Ian has been doing various martial arts styles during the last twenty years. He started teaching tang soo do (Korean martial arts) in 2002. Ian began teaching people with VI self-defence in 2005. Today he is teaching a curriculum mainly for people with VI, although sighted people can join his club, under the Chun Ji Do International Martial Arts Organization. Within the curriculum Ian bases his techniques on applicability, energy, and efficiency. Ian teaches everyone as if they were blind and divides the technique into a few steps. He reported that his students with VI improved their body awareness and their overall posture.

Ray (pseudonym)

Ray has been teaching taekwondo for 15 years. In addition to taekwondo Ray also teaches jiu-jitsu and MMA. His main teaching philosophy is based on modern training. Ray initially thought that a student who was VI could not learn martial arts but he was willing to accept and teach the student. Descriptive words and touching body parts that were used to perform applied techniques were the two main strategies that Ray followed when he was teaching the student with VI. According to Ray, today he finds the student confident and warmly accepted by his dojo peers.

Emily (pseudonym)

Emily has been teaching krav maga for a year and a half. Since Emily works in a martial arts club with many advanced instructors, she does not have to prepare the curriculum. However, she has to find the best method to deliver the techniques to her two students with VI. As Emily had to teach students with VI at the very beginning of her teaching career, she tried to create a strong social relationship with them to acquire their trust. As fully included students the martial artists with VI have to follow the same curriculum such as sighted students and to pass the same exams as their sighted peers. Emily reported that verbalisation with body parts is the main

strategy that she uses to explain applied techniques. She believes that the students improved their confidence, self-esteem and significantly developed their social skills.

Justin (pseudonym)

Justin has been teaching freestyle karate for four years. Justin tries to adapt the curriculum based on his students' needs and abilities. During his classes, Justin focuses on the development of the other senses and utilises positive motivation techniques. Justin always wants his students with VI to be fully included in the classes and not to be discriminated in any way. He believes that students with VI improved their self-confidence because they have trained in a mixed environment.

6.3.2 General results

All of the information contained in this study is self-reported by each instructor. In contrast to the many other sports, martial arts instructors can only be those who have a field experience in martial arts. Each of the instructors practiced more than one martial arts style. However, reasons for continuing one particular style were different as they had diverse personal needs. Furthermore, the instructors shared the same point of view; in that the style (styles) which they teach is the most applicable style that meets with what they perceive to be successful in the modern world.

None of the instructors had any knowledge about VI before any participant with VI started at their dojos and did not attend any additional courses about how to teach people with VI. All of them improved their knowledge from their experience of working with students with VI directly. However, all of the instructors reported that they had coaching qualifications to teach martial arts. Moreover, each of the instructors spent at least four times a week in the dojo teaching their students. Except for Emily, all of them constructed their sessions by themselves.

6.3.3 Themes

I conducted 6 semi-structured interviews with 6 martial arts instructors. The interviews ranged from 35 minutes and 55 seconds to 98 minutes and 31 seconds. This result is close to Smith et al.'s (2009) expectation that IPA interviews last between 45 and 90 minutes of conversation. All interviews lasted a total of 349

minutes and 03 seconds with an average time of 58 minutes and 17 seconds. After approximately 30 working days of analysing 55,071 words, I found 259 references spread across 24 nodes (8 parent nodes and 16 child nodes). Table 6.2 shows 8 parent nodes listed according to my perception of their relationship to the research questions, including their child nodes and the number of every single node. As with the previous study, that was presented in chapter 5, when the differences between the parent node and child node existed it means that the number of references was not included within any of the child nodes but in general parental nodes. To answer the research questions, next I shall address those themes that are related to the purposes of this study.

Table 6.2. Parental and child nodes from the primary analysis.

Parent nodes	Number of references	Child nodes	Number of references
Strategies for self-esteem improvement	59	Content of the sessions	24
		Students with VI vs sighted students	12
		Non-martial arts factors for GSE improvement	1
Personal perception about people with VI	37	Characteristics of people with VI	13
		Facts about people with VI	20
		Needs of people with VI	4
Teaching people with VI	37	Teaching philosophy	23
		Feedback	2
		Martial arts and VI community	5
		Special curriculum	7
Advices for martial arts instructors	30	-	-
Teaching experience	24	Reasons for beginning teaching	8
		Background	11
		Future coaching plans	1
General information about martial arts	33	-	-
Martial arts background	16	Personal benefits of martial arts	11
		Personal dojo	3
Advices for young people with VI	23	-	-

As some of the nodes were either overlapping or were not related to the study aims the nodes were reconstructed and recalled which resulted in five main nodes that existed. Each of the following five nodes has several themes which will be expanded in the discussion section.

6.4 Discussion of the themes

The themes below were addressed by most of the instructors, but not all of the instructors talked about all of the themes. This means that some of the instructors were active in talking about one domain of their experience with students who were VI and passive about the others. For example, Mark intensively talked about the coaching philosophy whereas he did not have many suggestions for the other instructors who are willing to teach people with VI.

I will now explore and analyse the themes that inductively appeared from the data analysis. All reported quotes from the instructors will be presented as they were said by the instructors in their own words without any changes. Importantly, the emerged themes included data that tell us the participants' orientation towards different life domains but at the same time answer the research question, and these types of results indicate an IPA approach (Smith, et al., 2009). These themes included instructors' personal perception about people with VI, reflexive coaching philosophy, strategies that instructors followed in teaching people with VI and its benefits, and general suggestions to the other instructors.

6.4.1 Personal perception about people with VI

It was found that the martial artists with VI stressed the importance of the instructors who were willing to accept them and how the feeling of acceptance in the clubs positively reflected on the martial artists' self-esteem (chapter 5.3.2.2.2.1). By contrast, being excluded negatively impacted their self-esteem, namely in childhood and adolescent periods, and the attitudes of others (e.g. refusing membership) was found to be one of the main external barriers to physical participation among people with impairments (Suphi, Butler, & Worthington, 2001). Thus, this node, the instructors' personal perception about people with VI, is important and has the

potential to answer the research question. However this parent node can be divided into two child nodes; social isolation of people with VI and people with VI deserve equal treatment.

6.4.1.1 Social isolation of people with VI

The instructors perceived that people with VI were often isolated and excluded. This first child node was strongly reported by Ian who showed his awareness of the social isolation of people with VI:

“As you know people that have disabilities are not widely accepted. People are trying to stay away from them or, they don’t know how to deal with them. And therefore these students feel isolated.”

Ray was aware that people with VI were not accepted and thought that he was the first one who accepted his student with VI:

“I don’t think he was accepted like all the time. I think we were probably like the first one to accept him.”

The issue of social isolation or social barriers was also reinforced by Emily:

“There is a lot of isolation. It’s unfortunate and I will tell you that both of our students that we have, erm, did reach out to people before they reached out to us and they were denied, erm, because they just did not know what to do with them.”

These three quotes support what the martial artists reported in the previous chapter (section 5.3.2.2.2.1). The martial artists stated that they were discriminated against, instructors did not know how to teach them, or did not warmly accept them. PE teachers have been identified as one of the most important barriers for including children with VI in PE classes (Lieberman, et al., 2002; Robinson & Lieberman, 2004). However, the instructors in my study did understand social barriers that people with VI may face, namely social exclusion and isolation. Thus, it is not surprising that the instructors, with such perceptions of society towards people with impairments, felt happy to accept students with VI and fully include them in the martial arts classes.

6.4.1.2 People with VI deserve equal treatment

In contrast to previously reported findings (Lieberman, et al., 2002; Stuart, et al., 2006) and their perceived version of society, the instructors accepted students with VI. For example, Justin appeared not to have negative thoughts about teaching people with VI:

“If someone is quite clearly prejudiced if they, if they are refusing someone with a visual impairment. Eh, I understand that it might take a lot of time. And that’s a bother to them. But I’ve never ever ever had a problem with it, ever, not once. Never been a problem to me.”

With such instructors’ attitude towards people with VI it is not difficult to understand their willingness to teach people with VI. However, the instructors stressed the importance of equal treatment among all students in the dojo. To be able to treat students with VI equally, Emily wore a blindfolded in order to understand how people with VI oriented and how they could learn martial arts, whereas Stephen questioned how he would like to be treated if he was VI. He further argued that accepting is not enough but people with VI need to be included and receive an equal treatment:

“As a generalisation I would think that anybody who is dealing with visual impairments or impairments of any, any time, erm, need to find a place where not only that they’re accepted but that they’re treated as, eh, as an equal.....Just to be treated as an everyday student, you know, I think it must feel somewhat liberating.”

From my perspective, equal treatment is a precondition for any improvement of students with VI in physical activities. According to the third tier of the self-actualization theory developed by Maslow (1987) people must feel safe, loved and accepted before they can benefit from physical instruction that will improve their performance, mastery, achievement, and other outcomes related to self-esteem (Collier, 2011; Sherrill, 2004). Sociability scales across all life stages reflect in some way people’s satisfaction, ability, and desire to meet new people and feeling accepted as well as the importance of being socially accepted (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986). The instructors’ perception of the students with VI, therefore, seems to be an important factor in supporting the self-

esteem of people with VI in that not only are students accepted, which is a minimal entry, but need to be included and equally treated. Part of being equally treated provides an environment in which everyone can equally learn.

In addition to a positive attitude towards people with VI, the instructors need to have an effective coaching philosophy with clear goals to be able to offer their students martial arts benefits in an inclusive environment.

6.4.2 Reflexive coaching philosophy

Good instructors need to be open-minded and have an understanding of what coaching is, what coaching is for them, and the needs of their students (Hardman & Jones, 2013). Beliefs and values that instructors utilize in their sessions is philosophy itself which reflects what the instructors believe and this is considered to be important in teaching/coaching (Cross & Lyle, 1999). The philosophy seems to be a significant indicator of the way in which instructors think not only in the context of the exercise but also various life domains. Strategies that instructors use to improve self-esteem therefore should be based on the instructors' coaching philosophy.

Martial arts instructors, particularly those who teach traditional martial arts, seek to develop mind-body unity through various strategies (Vertonghen, et al., 2012). Strategies that the instructors use when teaching students with VI should reflect their coaching philosophy. This means that the instructors need to have beliefs and attitudes towards martial arts in order to produce an effective teaching strategy (Nash, et al., 2008). However, the current study results showed that in the context of martial arts and people with VI, these beliefs need to be conceptualized within inclusion, equality, and understanding the needs and abilities of people with VI. Therefore, this node will be divided into four child nodes that inductively appeared from data analysis; theory versus real life, once technique numerous approaches, everyone can learn, and self-efficacy is based on martial arts skills.

6.4.2.1 Theory vs real life

The instructors believe that teaching techniques must be applicable and applied in the real life examples for self-defence purposes. Therefore, they construct their sessions,

which are mainly based on the modern and attractive techniques, so they may be useful as self-defence skills. Justin expressed that saying:

“We do a freestyle martial arts which means we can include what we, we feel is appropriate.....I’ve introduced more and changed certain things with the visually impaired because they need different things anyway because obviously there’ll be [real life] situations where they won’t be able to see.”

Ray added:

“My philosophy basically trying to always teach and adapt the training because as time goes on, things really change from what I felt, when I, when I started now, everything changes. Like, you know, everything gets more advanced. People are different ways to like, you know, get better. So I tried to like teaching as modern as possible and not do this stuff that the old teachings.”

This indicates that the martial arts instructors think that they need to teach their students self-defence skills which may be applied in more complex life situations.

This point was reinforced by Emily:

“Our curriculum is broken up into, erm, you have your, your basic level and then you kind of graduate through up to weapons type training, multiple attacker type training as you go.....We incorporate, there’s some similar movements, we’ve kind of adapted everything from muay-thai. Erm, there’s some taekwondo, there’s a lot of Brazilian jujutsu components to it.”

In this child node the instructors reflected a belief that people need to know self-defence skills rather than demonstration exercises (e.g. kata) to be able to face potential real life challenges. From their perspective learning only kata would not be enough for people with VI to improve their self-perception and thereby global self-esteem and self-confidence. It appears that this philosophical point is important for the martial artists with VI since they previously reported that because of self-defence skills they felt safe to walk around the city and travel (section 5.3.2.2.1). Pava (1994) found that women with VI who attended martial arts seminars/classes tended to be more confident in their self-defence skills ($r = 0.170$; $p < 0.05$). This was also supported by Wright (2005) when he described across different parts of his book how confident he was to go out as VI because of the self-defence skills.

This child node indicates that real life situations are based on theoretical parts of martial arts although the instructors believed that teaching self-defence skills was

what people with VI needed. At the same time however, the instructors reported that their student had an option in finding/creating a way to perform a technique according to their abilities.

6.4.2.2 One technique numerous approaches

Providing the students one technique across different approaches was the other philosophical principle that the instructors follow in their trainings. They believed, that this approach allowed their students, regardless of ability, to perform a technique in the most easy and effective way for them. Stephen reflected that saying:

“I try to keep it simple. Maybe only one technique for class and then, eh, drill that technique in different ways, erm, different scenarios. But still only just one technique. That way you can keep it locked in your head.”

Mark reinforced this principle saying:

“There is, so a lot of krav maga is philosophical in some sense, we say we’re not a technique based at all. Um, everything that we do is principal based. So, you know, we don’t, um...you know, even if we show you a technique to get out of some situation in a test...if you have your eyes closed and you’re surprised by that situation, or you do something completely different, if it’s effective, we still say that’s a pass.”

One of the main reasons for the martial arts practice from the students perspective is learning self-defence skills (Lantz, 2002; Twemlow, et al., 1996) which means that people want to learn skills for real world situations. Following this principle, the instructors showed an awareness of the importance of being creative and flexible in order to meet students’ goals. Being creative and flexible in the teaching approaches of a technique has been considered as essential for teaching people with impairments (Sherrill, 2004). This approach also indicates equal treatment of all students since everybody learns the same technique in different approaches. According to Collins (2009) effective instructors should recognize that they need to use different approaches for different students. Also, this strategy was identified as an important part of inclusion (Block, 2000; Lieberman, 2011). In other words, within this philosophy, students with VI perform the techniques in the most suitable way for them and feel included as their sighted martial arts peers learn the same technique.

6.4.2.3 Everyone can learn

The analysis also revealed that within the reflexive coaching philosophy, the instructors enabled everyone to learn regardless the students' ability. The instructors believed that there always was a way to learn martial arts regardless of the impairments and this also reinforces the view that instructors had a positive attitude towards people with VI. Stephen said:

"I find in this day and age, you know, so many people learn so many different ways. You know, between visually and like people who read things and people who need to do things. And so really for me it just sorta adds on, you know, just some other way that somebody else has to learn to do things. Some people learn the hard way where they have to get tapped out painfully once and then they'll never do it again. And, so really it just adds another thing to the list."

Collier (2011) argued that instructors working with people who are impaired should believe in each student's inherent worth and be committed to the development of their students' full potential. Emily reinforced this suggestion saying:

"I don't ever assume they can't do something just because they can't see it."

The instructors therefore provide an opportunity to everyone regardless of their ability. Stephen said:

"In the end I just wanna make sure that, eh, everybody's working out. Everybody's sweating hard. Everybody's having a good time. And, eh, and we're all progressing learning as a group."

This philosophical principle reflects the instructors' attitude for an inclusive approach which has been considered as an inclusion approach since Kasser and Lytle (2005) argued that inclusion is not only being in a mixed environment, which is considered to be integration, but also a belief that people with different abilities can and should benefit from applied programmes. For Block (2000) inclusion is when people with impairments (including multiple impairments) who may have unique ways of learning are not separated and their teachers provide them an opportunity for achieving their full potential. Moreover, successful physical activity experience of students with impairments mainly depends on teachers' attitudes and perceived and actual barriers to instruction (Lieberman, et al., 2002). A positive attitude was

reflected from the instructors' philosophical principle that everybody has the right to learn even through different approaches. Unless a positive attitude is present the students will not gain the benefits martial arts may offer. It does appear that the instructors within my study do have the attitude that people with VI can perform martial arts as well as their sighted peers.

6.4.2.4 Self-efficacy is based on the martial arts skills

The fourth and the last child node under the parent node of reflexive coaching philosophy is the instructors' belief in a need for changing the personal attitude of martial artists with VI towards themselves. Regardless of the techniques that a student wanted to use, Mark aimed to achieve two goals in his classes:

“There’s two things that are, that I’ve come to believe are equally important. One is the obvious one: we wanna change the object reality of how you would, of how you would behave if you were attacked. So, by changing the objective reality means that if you have to hit someone, I want you to hit them harder. I want you to hit them without hesitating. I want you to not curl up in a ball and I want your response to just genuinely be different. And I want your combatives to be well targeted and hit as hard as possible. That’s the completely obvious thing. The less obvious thing is that, I want the subject reality to be different too. So I want you to walk around on the street viewing yourself as an opponent and not a victim. And I want you to behave as though you’re not...as an opponent and not as victim.”

The description of these two goals supports Hardman and Jones (2013) who reported that two sources of values exists in coaching: objective values which relate to the importance of things as objects in and of themselves (Mark's 1st goal), and subjective values which relate to the importance of things to individuals (instructors or students) (Mark's 2nd goal). This means that students need not only to improve their martial arts skills but also their perception about themselves. According to Ian, mastering a technique and practicing with a partner should develop the attitude of being an opponent and not a victim:

“All I really wanna do is do a couple of techniques, kick, have an interaction with my partner. And I don’t wanna always apply any philosophy there. I don’t wanna always speak philosophy. I wanna be, I wanna be clear so that I can be who I am. And remember, how can I express myself? I cannot express myself if someone says you have to express yourself in that specific fashion. That’s not self-expression isn’t it? It’s like you’re forced to do what.”

Previously, it was claimed that martial arts practice can help in building character and self-confidence (Nakazawa, 1999). It is particularly important for people with VI to have a positive attitude and not seeing themselves as being a victim since Rounds Jr (1996) found that 65.5% (n = 38 of 58) of interviewed individuals with VI reported that they were victimized at least once while they were VI. Rounds Jr concluded that people with VI are more victimized than people without VI. Therefore, martial arts practice could be considered as a preventable method for feeling like a victim.

The philosophy which is embedded by instructors is a complex set of beliefs and attitudes towards activities and coaching that produces an appropriate coaching style, methods of communication, and the ability to face challenges that instructors face (Nash, et al., 2008). The beliefs often must be inferred from the instructors' experience over time reflecting personal, social, and professional understanding of the applied activity (Ennis, 1994) and may be formed through three sources: active participation as an athlete or coach, educational background, and life experience (O'Sullivan, 2005). Instructors usually start coaching from different backgrounds. Therefore, we cannot expect to see all instructors operating in the same way (Lyle, 2000) but also cannot consider that certain values or beliefs are correct or not. In addition, it was recently found that instructors from different martial styles and within one martial arts style (e.g. karate) follow different teaching approaches (Vertonghen, et al., 2012). However, instructors should be aware of their beliefs about coaching and how those values influence their practice (Cassidy, Jones, & Potrac, 2004). Instructors in the present study reflected an awareness and understanding of their philosophical approach to teaching and coaching. I consider understanding their theoretical approach important and fundamental to successfully meet the research aim which is to investigate the strategies that martial arts instructors utilise to improve the self-esteem of people with VI. The values and beliefs that instructors possess are likely to reflect their teaching strategy, setting the goals, and subsequently the ability to achieve these goals. The main philosophy that produces an opportunity for effective teaching, as it appeared from the themes, is modification to the curriculum and/or techniques according to the students' abilities and subsequently they may achieve the goals. In other words, the instructors

construct training sessions in the way that their students may achieve the desired goals through different methods and techniques. These goals, seek for self-efficacy and martial arts skills improvement through equal treatment. The strategies that instructors use to improve the self-esteem of their students with VI, which will be critically discussed next and reflect their philosophical principles.

6.4.3 Strategies that instructors followed in teaching people with VI and its benefits

Within this node the instructors talked about the strategies they used to improve self-esteem in people with VI and the benefits that this produced.

6.4.3.1 Inclusion

Since the instructors had a positive attitude towards people with VI and reflected the importance of equal treatment it is not surprising for the instructors to consider inclusion as one of the fundamental factors for self-esteem improvement. When I asked the instructors about the strategies they used to improve the self-esteem of their students with VI, they reported that the equal treatment and training in the mixed environment with sighted people played a significant role in social relationships enhancement. Inclusion is particularly important for people with VI since 42% of people with impairments take part in physical activity for socialization reasons (English Federation of Disability Sport, 2013). Regarding the importance of socialization and equal treatment Justin said:

“Training at, eh, mixed environment is ideal for two reasons. One it means they get, they get to share experience with visually impaired and non-visually impaired people. And it also means that when they need more attention.....As I’ve said the...there are students with normal vision that help to teach on a one on one basis people who are visually impaired, including Ron, he’s blind and deaf as well. And they love it because they’re, they’re...they’re teaching the skills that they’ve learnt to somebody else. And they absolutely love it. Honestly they do. It’s always been a, eh, mixed environment. And everyone loves training together, always have.”

Inclusion is based on the principle of valuing diversity, feeling of acceptance, belonging, and being supported (Sherrill, 2004). She further classified inclusion into physical, instructional, and social inclusion. Physical accessibility does not necessarily mean social inclusion (Sherrill & Williams, 1996). Social inclusion is a

frequent pleasant interaction between the students who contribute to feelings of acceptance, respect, and value for one another (Spencer-Cavaliere & Watkinson, 2010). Social inclusion has been described as having equal status relationships in which students, regardless of their abilities to interact with each other, reciprocate (Sherrill, 2004). Thus, acceptance and being treated equally may be considered as only one aspect of inclusion that the instructors mentioned. Being fully included, not only integrated, in the mainstream dojo class is one aspect of acceptance that has emerged from the data.

Another aspect of inclusion, as stated by the instructors, is to follow the same curriculum as everybody else. Talking about her students with VI Emily said:

“We don’t change things for them based on their disability. We still require that to pass the test, their stuff works on a hundred and seventy pound male on the street. So if the power’s not there they’re not, they’re not gonna pass.....There are some things where we have to, we have to modify. Like there are some things that they’re still just not gonna be able to do. It doesn’t make sense. Erm, so we will modify accordingly when we come across them.”

Justin added:

“The most important thing was to try and keep things, eh, as normal as possible, eh, whilst understanding that he has certain issues and his eyesight would also deteriorate over time as well. Erm, it’s not to say that we adapt syllabus we teach but consider that, eh, like, for example the attacks from behind if they were away from his peripheral vision he would have difficulties. Other than that it’s basically teaching him to adapt the way he, eh, looks and hears people and feels the, the movement around him. Erm, so to find a unique way which he wouldn’t normally use it in his daily life.”

“One of the greatest components of inclusion is that all students must somehow fit into the existing curriculum” (Block, 2000, p. 33). Therefore, having the similar curriculum is essential for inclusion to occur and this is what the instructors followed reflecting their coaching principle of the ‘one technique numerous approaches’.

A third domain of inclusion, as was reported by the instructors, is providing the same feedback to the students with VI as to the sighted students. Talking about giving feedback Mark said:

“Feedback’s the same as for sighted people and I do it the same way. I’m not gonna, you know, I’m gonna try and, you know, when I’m walking around and looking at someone, I’m like, ‘I wanna break them of this habit today, or I wanna fix this today’.”

Ian also reported:

“Feedback is not always positive. But as you can imagine the positive outweighs the negative by, by a lot. So as long as I keep that as some sort of ratio I’m okay with it.....The feedback is just to improve him. Give him like tips where he can do things to improve.”

In these two quotes the instructors showed that although they were more likely to provide their students with VI with positive feedback, resulting in more feedback generally for all students. Therefore, constructive feedback was provided to both students with VI and normally sighted.

However, inclusion does not exist only in the dojo. Some of the instructors are also friends with their normally sighted students and those with VI and their relationship is based on trust. As such relationships also reflects their full inclusion not only in the dojo but in general life as well. Talking about the first days when she had to teach students with VI Emily said:

“We started to socialise. Erm, they are both very good friends of mine.”

The instructors created social relationships with their students regardless they were VI or not. Instructor-student relationship is significantly important in determining methods to provide accommodations for students with VI (Supalo, 2005) and subsequently benefit from the classes they attend. In the previous chapter (section 5.3.2.2.2.1) the martial artists also stressed the importance on their relationship and its importance as one of the factors for the self-esteem improvement.

Utilising the principle of inclusion (both inside and outside the dojo) it seems that the instructors succeeded in meeting the following social inclusion goals that were reported by Sherrill (2004): how to interact with others, developing beliefs about self and others and equal status, reducing social isolation, creating and maintaining friendships, and developing necessary skills for future acceptance by peers. In other

words, by being inclusive the instructors believed that their students with VI improved social self-esteem, for example Stephen said:

“I’d say that there’s been some improvement in his, eh, his overall, erm, outgoingness. When he started here he was a little bit on the reserved side. Maybe just shy somewhat. Since he’s been here obviously he’s opened up quite a bit. Erm, you know, he’s always the first one to crack a joke which is really fun. And, eh, I’ve seen just, eh, I just see that he sees this more now as a, his community. Whereas before he was sorta the outsider.”

Mark reinforced this importance of inclusion on social self-esteem improvement by saying:

“Her social interaction with people in the gym is definitely, yeah ah, is definitely improved. Um, yeah she comes to all of our events. She loves talking to people, um, even with new people, which I guess is sort of interesting. So, eh, you know, I would expect it now that she’s known me for a year, she’d be more comfortable talking to me. But when people walk into the gym that she doesn’t know, she feels more comfortable with that. Um... so yeah, that, that’s interesting.”

According to Block (2007) inclusion provides students with impairments an opportunity to learn and practice social skills in natural environments and helps them to create relationships with others. Hodge et al. (2012) supports this argument and considers the social aspect as one of the greatest benefits of including students with impairments. This is not surprising as people with VI are more likely to find activities which provide them social opportunities (English Federation of Disability Sport, 2013). However, teachers often have negative attitudes towards people with VI due to the lack of confidence and knowledge about how to teach this group (Fraser & Maguvhe, 2008) and require a deeper knowledge and understanding of inclusion strategies and methods (Morley, Bailey, Tan, & Cooke, 2005). But, the instructors from my study did not attend any inclusion courses and did not have any previous theoretical concepts about inclusion. Instead of excluding them, the instructors accepted the students with VI and tried to find the best strategies to develop their martial arts skills. Whether Herold and Dandolo (2009) were correct or not in saying that positive attitudes towards inclusion are prevalent, probably needs further research.

In his book, Block (2000) presented some of the previously found benefits of inclusion such as learning social skills and creating new friendships but not self-esteem improvement. However, Martin and Smith (2002) aimed to investigate friendship quality in youth disability sport among 150 athletes with impairments aged 9-18 years. Their results indicated that an inclusive setting provides the participants with loyalty, intimacy, and better self-esteem. It seems that when people with impairments are included they are more likely to be perceived as valued by those without impairments and this may have a positive improvement on the self-esteem of people with impairments (Lieberman, et al., 2013). This reflects that people with VI consider those who accept and include but not bully them consider as friends. Individuals with VI often want to create relationships with those they perceive to be popular (Rosenblum, 1997). Thus, being included in the dojo initially by an instructor, people with VI perceive their instructors as their friends, which potentially increases social self-esteem. The present study finding adds to the literature of the importance of inclusion on social self-esteem improvement. Social self-esteem in different forms has been determined as one of the self-esteem domains across all life stages (Harter, 1985, 1988; Messer & Harter, 1986). In a multidimensional construct of self-esteem a highly important domain can impact on global self-esteem (Harter, 1999). Consequently, we can reasonably argue that the strategy of inclusion which improves social life and feelings of acceptance in people with VI can be that important domain which impacts on global self-esteem. From the results of this and the previous chapter (section 5.3.2.2.2.1) and the results which showed that 42% of people with VI look for socialization through exercise (English Federation of Disability Sport, 2013) it appears to indeed suggest that the social domain is important to people with VI. Martial arts practice and the instructor-student relationship seems to be a successful medium to support social inclusion and consequently global self-esteem. The instructors reported a significant importance of the social self-esteem as a mean for the global self-esteem improvement. However, peer tutoring was perceived to be one of the effective teaching methods for social self-esteem improvement.

6.4.3.2 Peer tutoring

In order for students with VI to feel more included and to adapt in the dojo environment, either the instructors or very advanced students partnered them during the sparring. Mark expressed this saying:

“We got used to partnering her with an experienced person and we don’t tend to wanna...you know somebody, that if she swings and she doesn’t know quite where you are and accidentally swings at your face – somebody who’s gonna move. Which sounds like a normal thing, but if you take somebody and it’s their first day of class, eh, they’re not gonna move, they’re gonna get hit. And so, she’ll feel comfortable if she’s with somebody that she knows can take care of themselves and is gonna catch her punch if it goes somewhere that she didn’t intend for it to go. You know, she’s not gonna intentionally not swing at a pad, but it can happen on accident with her. So I think she’s more nervous about that, but she’s learned that if she’s with somebody who’s experienced and then, you know, there’s really nothing to be concerned about.”

Ian added:

“We’ve been very successful with our sparring students with our blind students. Erm, it just requires to take the...the conflict out of the equation. So before these two competitors against each other. But...with what I do, there’s the competitor and there’s the coach. The coach becomes the competitor. And the coach, I turn up the heat if I must. And I, I turn down the heat if I have to as well. And I can do the exercise that they do now. I can actually do all the drills with them and we flow. So it’s kind of like creating a little bit choreograph but not completely.”

From these two quotes it seems that the instructors promoted inclusion through peer-tutoring, which has been identified as an effective teaching strategy which can ensure that students with VI have an opportunity for skill development and adequate instruction and feedback (Lieberman & Houston-Wilson, 2002). Thus, Sherrill (2004) suggested that inclusion is important since it provides valuable social and academic learning opportunities for all students. Previous research (Lieberman, Newcomer, McCubbin, & Dalrymple, 1997; Wiskochil, Lieberman, Houston-Wilson, & Petersen, 2007) also found that children with VI increased their academic learning time-PE, improved skill level and the perceptions of ability to be involved in physical activities when working with trained peer-tutors in PE classes. Similar findings have been reported by Halle, Gabler-Halle, and Bembien (1989) and Block et al. (2001) who determined that peer tutoring can be effective in enhancing

physical skills and the motor performance of school children with severe impairments. Furthermore, by having a peer-tutor, students with VI may feel attended to, which is a 'must approach' which should always be considered by the instructors (Rouse, 2009).

Although, to my knowledge, the physical activity literature did not explore the effect of the peer tutoring on self-esteem, this teaching method was found to be useful for self-esteem improvement in different settings. For example, to investigate the changes in the self-esteem of children participating in a randomized trial of paired reading, Miller, Topping, and Thurston (2010) recruited 87 children for the same age group and 81 children for the same-age group who were doing the peer-reading, whereas the control group consisted of 92 children. While the control group showed no significant difference on the Rosenberg's Self-Esteem Scale the cross age group and the same age group had significant gains in self-esteem; $F(1.80) = 4.10$, $p = 0.023$ and $F(1.86) = 3$, $p = 0.044$ respectively. However, the instructors' reports reflect that partnering experienced students or instructors, the martial artists with VI felt more privileged, confident, and socially included.

6.4.3.3 Teaching modifications

In addition to social inclusion and peer tutoring, the instructors talked about the methods of teaching martial arts skills. In their book, Lieberman et al. (2013) identified three modifications that have also been mentioned by the instructors: verbal instruction, tactile modelling and physical guidance, and step-by-step instructions.

People with VI largely depend on an increased amount of verbal description (Rouse, 2009). The success of performing an activity largely depends on the ability of the instructors to give precise verbal description (Sherrill, 2004) since students with VI depend on teachers consistency in terms of the precision used in order to assimilate definitions of the skills (Lieberman, et al., 2013). However, none of the instructors reported that they used only the verbal description. For example, Ray used a combination of the verbal and tactile instructions:

“You just had to use a lot of like, eh, tokida, like key words and a lot of like, eh, touching of the shoulder, the movement and moving him around. And telling the partner that, ‘okay, you know, make sure, you know, you at least touch his hand before you start’, like. So just a lot of like words, eh, commands and like, and certain ways to like position him.”

Although Emily usually depends on the verbal description she believed that her students prefer a tactile guide:

“We had to use better verbalisation with body parts. So our, I won’t say shrug, I’ll say, ‘try to get your shoulders to the bottoms of your ears’. That makes a little bit more sense to a visually impaired person. Erm...we, the other thing that we found that we had to do is we actually just asked their permission to place their body in position. And they actually seemed to prefer that.”

It seems that these teaching methods are the only methods that have been identified previously as possible for people with VI in the concepts of physical activity.

However, no research has explored what would be the most effective teaching method and the instructors have different perspectives. Nevertheless, the instructors need to try the most suitable methods that meet their students’ needs, considering that the instructors do not have to use all the instructional methods (Lieberman, 2011) although the instructors need to know more than one instructional model so that students with VI may choose the one that best fits them for a certain skill.

However, only one instructor (Ian) reported a use of all three modifications in his classes, but more importantly Ian focuses on step-by step skill mastering:

“The pizza is a technique. We take that pizza and cut it into small slices and give you a little piece at a time. And by the end of that day that you come to me, you own the technique, versus you’re still kinda in question. So slicing the technique down. And I do the same thing for the blind students. A lot of, erm, not the full move, a half a move. Erm, when I teach kata I teach only, say sequence by sequence. Not the whole thing all the way through.”

According to Lieberman et al. (2013) a combination of tactile and step-by step models are a powerful method of instruction for students with VI, particularly at the beginning of the learning stage. Further, physical guidance modelling has been shown to enhance self-efficacy in novel tasks for children with VI (O 'Connell, Lieberman, & Petersen, 2006). According to the EXSEM, increased self-efficacy improves physical self-esteem which positively affects the global self-esteem (Sonstroem, et al., 1994). Although the literature did not explore this issue, we can

reasonably believe that this seems to be true, particularly taking into account that physical guidance increases success in acquiring skills (Lane, 1996). When the mastery attempts are perceived successful through optimal challenges, the martial artists will more likely receive positive support by significant others, show higher levels of perceived competence, and feel a sense of internal control (Harter, 1978). As the instructors mentioned, they work on creating an environment and setting the goals through which students can feel the progress, meet their expectations, and realize that the techniques may be used in real situations. For example, Stephen said:

“It’s not a, martial arts is unique in the way that you have no expectations that you don’t really put on yourself. If you’re expectation is to come in here and just to have fun and to learn, erm, that’s all you need to do. Whereas sports, a lot of other sports, if you’re given a role, you have expectations. You have to know where to be. You have to know how to do things and how to perform moves and martial arts isn’t really about that as much. If you wish to belt or progress then there are certain expectations. But if you don’t ever want to get a belt and you just wanna come in here and learn then that’s, that’s cool too. I think that helps with your self-esteem and confidence. Not being given external hurdles to jump all the time. Feeling that you are progressing at your own rate and achieving your own goals.”

As previously discussed, self-esteem has been described as a relationship between one’s achievements and one’s aspirations (James, 1983) following his self-esteem formula, which means that achieving success and avoiding failure maintain self-esteem.

$$\text{Self – esteem} = \frac{\text{Success}}{\text{Pretensions}}$$

To improve the self-esteem of the students with VI and not let them feel discriminated or different the instructors also reported that they started following these teaching methods to all of their students (students with VI and normally sighted). Mark supported Emily and he felt that the tactile guide is easier for the students with VI. Mark said:

“Martial arts is very much something that I was used to teaching by showing, eh, demonstration is always a huge part of teaching martial arts. Once, when someone with a visual impairment’s in my class, and we’re gonna do a technique, I used to try and be very explicit when I spoke. Um, you know, move your left foot to the front of your right foot...then eventually I realised, you know, that’s just

silly, I'm losing them anyway. Cause there's too much going on. So I just got accustomed to, you know, I say things to everybody the way I did and then, like, once I know them or somebody who is visually impaired is a lot more comfortable, just walking next to them and grabbing them and being like, 'no, do it like this.' And moving them out. I actually just started doing that with my sighted students too."

Again, as in the previous two themes, the instructors focus on inclusion and equal treatment. Not being discriminated, in any form, was the first mechanism that was reported by the martial artists with VI (section 5.3.2.2.2.1).

Another strategy that the instructors' use, which also supports previous statements stated by the martial artists, was teaching real situations, which shall be addressed in the next theme.

6.4.3.4 Teaching real life situations

Although there is no literature to support the instructors' beliefs (which reflect their coaching philosophy) that teaching real situations improves self-confidence in people with VI, they themselves felt that this is an important issue in improving self-esteem.

Justin said:

"Some might not agree with that but I think, eh...the only way they could be taught self-defence as part of martial arts training is you need someone who's fully sighted sometimes so they can appreciate what the effects of someone with normal vision is attacking them, if that makes sense. Albeit in a club environment. Eh, because obviously if, if there was two people with a severe visual impairment training together, that would never be likely a real life. But real life for them would be a visually impaired person and a normal person.....They're more confident just walking around people, eh, and not bumping into them or falling over or embarrassing themselves or, it isn't necessarily about a safety issue. It's about a life confidence issue."

Talking about bunkai Ian added:

"Bunkai is like...it could be a fairy tale or it could be as close as to reality as you wanna make it. But when I used to teach there was a lot of fairy tale. And then I found that my students would exactly do what I teach them. And that becomes a liability."

In the field of martial arts literature, this issue has been mentioned while in other sports it is rare to find techniques that may be used in real world situations. However,

in the previous study of this thesis (section 5.3.2.2.2.2) the martial artists reported that because of mastering self-defence skills, which often meets criteria for the real world situations, they felt safe and confident (Wright, 2005). Previous results showed that martial arts training was significantly related to the failure of attempted assaults ($r = .23$; $p < .01$) of people with VI (Pava, 1994). Also, practical self-defence skills have been identified as one of the factors that impact a person's sense of control of his/her life and consequently improves global self-esteem (Kelland, 2009).

The instructors reported that their students with VI improved self-esteem, social self-esteem, and self-confidence as a result of the four aforementioned strategies.

However, they also reported that their students with VI increased body awareness which positively impacted the life of the students with VI as will be addressed next.

6.4.3.5 The importance of self-awareness

According to the instructors, their students with VI improved body awareness and posture as a result of martial arts practice. Ian said:

“Look at the videos where they’re more white belts anything else, erm, and then look today when we have black belts. I, I have...erm, I dunno how to explain it. I have a person who is completely blind. And she can adjust herself with the angles, during a kata like Sayoshin or Gojoshiho where there’s multiple changes of angles that an average person has trouble. She does it without me even telling her anything. She walks through the centre without a cane sometimes. Erm, I have a lady here, she runs through the centre. Erm, they sense, they sense when I come to close to them. But more importantly their posture has changed, their breathing is changing. Erm, you know, the overall flexibility of course as well is changing.”

Emily reinforced this point saying:

“They...are aware that one, they are...erm, they’re always gonna be in a position where they need to be alert. And I think now they feel like not only, they don’t really have to worry about being in the dark anymore because now they know what to do. Now they know how to manage their bodies, manage their skills that we teach them. Now they know how to get out of some of these situations.”

Despite of not being addressed clearly in the literature, the instructors support what the martial artists stated in the previous chapter (section 5.3.2.2.2.2) whereby they identified body awareness as one of the reasons for self-esteem improvement. The martial artists reported that improved intellectual self-esteem (including body

awareness) helped them to be more independent in their daily movements, solve their problems more effectively, and choose correct decisions which caused them happiness.

6.4.4 Suggestions for instructors

The instructors were willing to give advice to the other martial arts instructors who are interested in teaching students with VI but do not have experience or knowledge. These suggestions however, were related not only the self-esteem improvement methods but also effective teaching and coaching.

Similarly to Emily and Ray, Stephen thought that although instructors may think that students with VI cannot do martial arts it should not be a barrier for teaching them:

“Since before Johnny, I would never known that, eh, a blind person could do martial arts. And now I’m wondering why more blind people don’t get into martial arts.”

Prior to teaching students with VI, the instructors had a deficit model towards people with VI, which was a result of a lack of knowledge about how to teach their students with VI and their abilities (Winnick, 2011). However, the instructors accepted teaching the students with VI and realized their mistakes and therefore their perception towards people with VI abilities changed. From their perspective today, the instructors believe that everybody can achieve and this should be one of the first perceptions among all instructors as follows. After that, the instructors advise that other instructor have to be creative and patient as follows.

6.4.4.1 Creativeness and patience

All instructors agreed that those who have to teach people with VI need to believe that individuals with VI can achieve their martial arts goals but also possess two characteristics: creativity and patience. Emily said:

“I guess a good communicator, very patient, erm, and you have to be adaptable. You have to be able to say, ‘okay this is not working’. ou’ve gotta be willing to say, ‘okay, I’m gonna teach it to you exactly as I would anybody else because I’m not gonna assume you can’t do it’.”

Justin also said:

“Be open minded. Be willing, eh, people don’t like change. People like to do things the old ways, they’ve always done it. Eh, what, what martial artists sometimes forget is, is martial artists, eh, well martial arts, eh, is five or six hundred years old and probably older. And it, and some people try to do exactly the same thing that we done five hundred years ago. And, you know, those martial arts have changed but they don’t realise they’ve changed. So, so, erm, a good example is that we, we teach defence against a handgun. Well a handgun didn’t exist five hundred years ago. But if it did they would have taught that, wouldn’t they? So people don’t realise that they need to just change to modern times. And modern times is, is adapting whatever you to do suit, to teach your students need.”

Creativity has been considered as extremely important for those who are teaching people with impairments (Sherrill, 2004). She further considered that creativity is a combination of the cognitive behaviours (fluency, flexibility, originality, and elaboration) and the affective behaviours (acceptance of new ways and people, imagination, curiosity, caring, and courage). This means that affective behaviours are essential for teaching people with individual differences. Considering individual differences Mark said:

“Patience is a big one! You have to be patient but more so with yourself. Not with whoever has the, eh, the impairment or the disability. Erm, you just have to realise that, erm, everybody learns different ways. And I think that’s very important for an instructor and to be patient. Not to get frustrated with any of your students, especially those who have, erm, any sort of impairment. Or not understanding what’s going on.”

Furthermore, in order to improve their coaching styles, instructors need to be patient and to accept their mistakes and subsequently they will learn. Ian said:

“You have to be patient or...you have to be willing to become patient..... Willing to make mistakes. He has to be actually, absolutely comfortable making mistakes. That’s the big problem, instructors don’t wanna make mistakes. Ask me how many, how many mistakes I made. You know what I mean. So the only reason I’m...erm, comfortable today teaching what I do, by the way I still make mistakes. Erm, but the only reason I, I’m comfortable is because I had a few mishaps and stepped on someone’s toe and, you know, and someone falls and stuff like that. And I realise I have to stress a couple of points, safety, erm, health, you know.”

Recently, Lieberman et al. (2013) have considered that the lack of knowledge of coaches can cause barriers to people with VI. However, those who study to become adapted physical education teachers have little or no experience of working with

students with impairments (Winnick, 2011). In Lieberman et al.'s (2002) study many teachers did not believe that they knew how to teach students with VI. Indeed, instructors need to be guided in learning by doing (Schon, 1987). Good teachers are those who are ready to adapt goals, content, and pedagogy beneficial to all students (Sherrill, 2004; Winnick, 2011). Thus, I agree with the instructors that their colleagues need to be patient and creative if they really want to teach students with VI. Again, such as Sherrill (2004) said talking about the affective behaviours, instructors need to be creative and to have a positive attitude in the first place. However, this does not mean that inclusion courses would not produce faster benefits of martial arts practice and that instructors would not feel more comfortable and confident.

6.4.4.2 Motivation to students with VI

Ian argued that students with VI need motivation and want to be happy, therefore it is easy to meet their needs if the instructors set the goals that can be achieved:

“We need to encourage the, not the students. The students wanna learn. But we need to encourage instructors to start accepting people, just general with vision, not just visual impairment but disabilities, right. They’ll want to be black belts. They’ll want them to be just happy.....Like any other student you will give rank on this timeline, whatever, three, four years down the road, they get their black belt. So you give ‘em a goal. That’s how you encourage those who are in to maintain their training.”

The previous research findings showed that students’ autonomous motivation towards PE has a direct effect on global self-esteem (Hein & Hagger, 2007) or positively predicts global self-esteem (Standage & Gillison, 2007). Collins (2009) claimed that good instructors are those who guide, inspire, and motivate their students to the maximum. The instructors therefore need to study the students’ goals and then to reconstruct them or to create achievable objectives for a shorter period of time. As it has been mentioned, achieving success and avoiding failure maintains self-esteem (James, 1983).

6.5 Implications, applications, and limitations

With respect to the adapted physical activity experts, who provided strategies about teaching and coaching people with VI, this study for the first time provides strategies for self-esteem improvement followed by instructors/coaches in the field. The instructors shared their experiences about how to teach people with VI and their perception about the benefits of these strategies. Thus, martial arts instructors may gain an idea about what they need to apply and how to adapt the class when teaching people with VI.

Again in this study none of the instructors was teaching “soft” martial arts which leaves a gap in the literature about the importance of psychological domain and comparing it to the physical training. In addition, for the purposes of this study I followed IPA which uses interviews in addition to observation as the main methods of data collection. However, due to geographical barriers I could not observe the classes. Observing classes would improve the validity of interviews (DeWalt & DeWalt, 2002) and provide a better understanding of the events. Also, it would help in gaining information that participants were unable to share for different reasons (e.g. participants forgot to say something, could not express appropriately, or did not consider to be important) (Marshall & Rossman, 1995).

6.6 Chapter Summary

At the beginning of this chapter, I presented the aims of the study which was to explore the strategies that martial arts instructors use to improve self-esteem in martial artists with VI. I decided to follow IPA since this qualitative approach appeared to fit the study aim. Six ($n = 6$) martial arts instructors were interviewed following semi-structured interviews.

From the data obtained from the expert martial arts instructors, I constructed a conceptual map (figure 6.1) that clearly summarises the themes that were addressed by the instructors within every of the above mentioned nodes.

It appears that the instructors had positive attitudes towards people with VI and worked on meeting their goals through fun and enjoyment. The instructors’ main

characteristics were patience and creativeness employing inclusion, peer tutoring, teaching real situations, motivation, and various teaching modifications.

Interestingly, most of these strategies have not been found previously as methods for self-esteem improvement and did not explore a relationship between using any of these strategies and self-esteem. Most of the mentioned strategies are related somehow to the social aspect of self-esteem and inclusion. Consequently, instructors reported that their students with VI improved their social self-esteem. However, they did not directly address global self-esteem.

Although none of the instructors had any knowledge about VI, inclusion strategies, or adapted physical activity, they were learning by doing, such as Schon (1987) suggested. The instructors who are not sure how to teach people with VI could follow the example of these six instructors and probably deliver the martial arts benefits to everybody regardless of age or ability.

Regarding young people with VI who have a desire to learn martial arts they should try to keep in the mind that it may take some time to become a really good martial artist. All they need is to determine their goals, forget negative perceptions and find a good instructor.

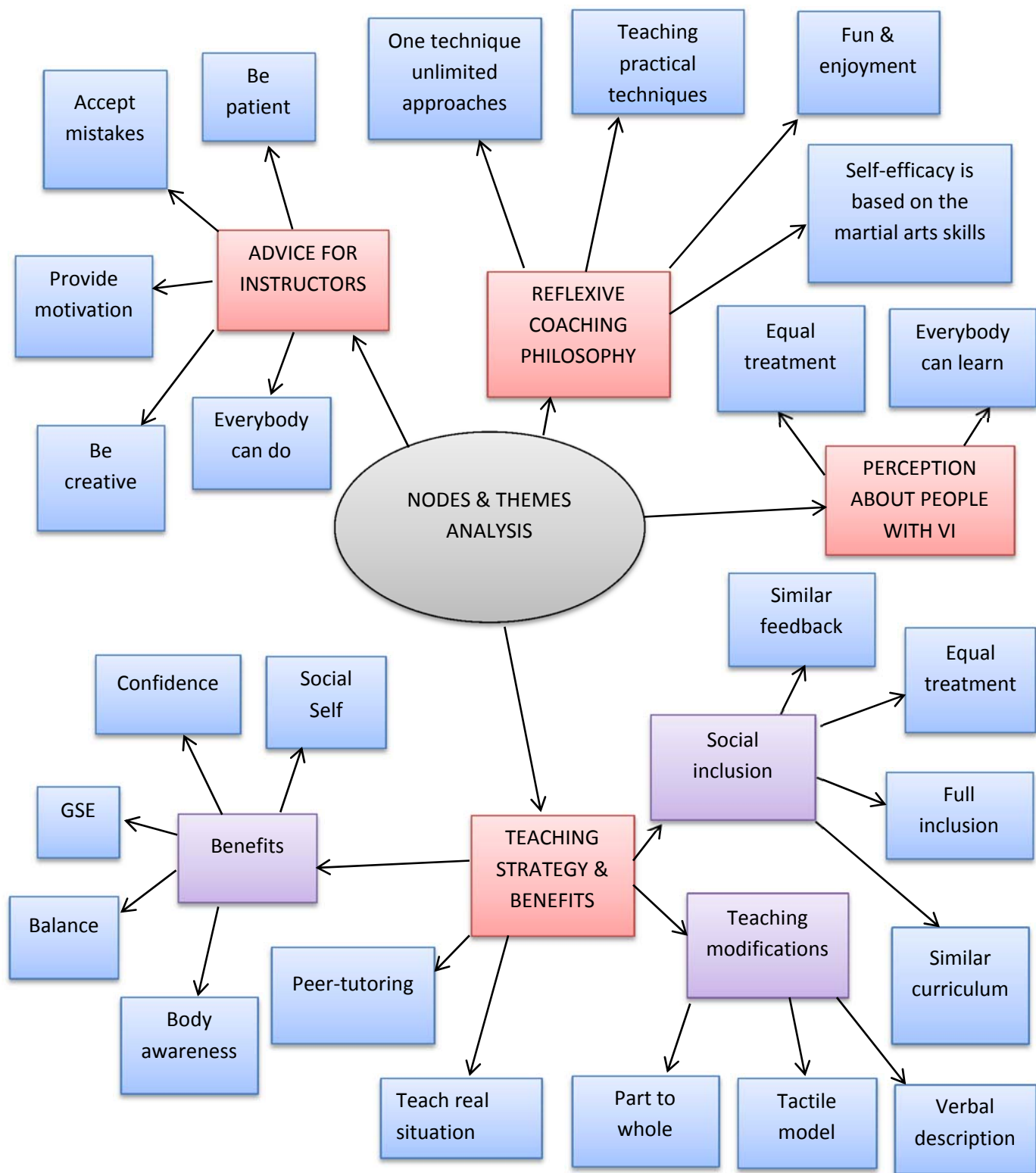


Figure 6.1: Conceptual Map of the aspects that contribute in the self-esteem development, effective teaching, and advices for the others with VI of people with VI from the instructors' perspective.

Although this study provided the strategies that martial arts instructors use to improve the self-esteem of their students with VI, there is a need for a general discussion that will tie together the results. Therefore, the next chapter will present an overall discussion of all of the three studies I conducted within this thesis. I will identify the mechanisms and strategies for self-esteem improvement in martial artists with VI, providing a model that explains all the necessary factors for self-esteem improvement in martial artists with VI, as the current thesis results have shown.

Chapter 7: General Discussion

Chapter overview

This chapter will provide a general overview and summary discussion regarding the main findings of the thesis that were presented in the case study and interviews with martial artists with VI and their instructors. At the beginning of this chapter I will restate the main aims of the thesis and present the main findings. Following this, I will discuss a coherence of the three studies and their importance in the context of inclusion and the philosophy of martial arts. This will lead into further discussion regarding the main components that have been identified as necessary for global self-esteem improvement in people with VI; namely, inclusion and intellectual self-esteem. At the end of this chapter, I will highlight and critically discuss the implications of my research and the contribution to knowledge, and recommendations for future practice.

7.1 Overall conclusions, implications, and recommendations

7.1.1 Aims and objectives of the thesis

This thesis consists of three main studies that were presented in the previous three chapters which aimed to investigate the effect of martial arts practice on global self-esteem in people with VI and its mechanisms and strategies. The first study (chapter 4) aimed to explore the effect of martial arts practice on global self-esteem in young adults with VI through the EXSEM and identified whether the study participants could maintain any change in global self-esteem with a 3-month follow up. It was found that a 10-week martial arts (karate) practice may improve exercise self-efficacy, physical self-worth, and global self-esteem in young adults with VI. Furthermore, exercise self-efficacy, physical self-worth, and global self-esteem were higher than the baseline (except global self-esteem for two participants) in people with VI 3-months after completing the karate programme (table 4.5). The purpose of the second study (chapter 5) was to identify the mechanisms for global self-esteem improvement in martial artists with VI from their own perception about past martial arts experiences. The thematic and narrative data analysis found that martial artists with VI identified their instructors, socialization in the dojo, and the outcomes of

intellectual improvement as three key factors for their global self-esteem improvement. The third study (chapter 6) explored the strategies that martial arts instructors utilise to improve the self-esteem of people with VI. Martial arts instructors perceived inclusion, peer tutoring, teaching modification, teaching real situations, and creativeness in pedagogy as the main reasons for self-esteem improvement in their students with VI. The instructors also believed that within martial arts practice, as a form of physical activity, balance and self-awareness were likely to improve, which had a positive effect on the students' global self-esteem.

7.1.2 Coherence of the studies

Previous research has investigated the effect of martial arts practice on global self-esteem in sighted children, sighted college students, sighted adults, and sighted people with impairments (Conant, et al., 2008; Finkenberg, 1990; Lakes & Hoyt, 2004; Li, et al., 2002). The literature review (chapter 3) showed that martial arts may be used for self-esteem improvement in different population groups. However, study one (chapter 4) found that martial arts practice may improve global self-esteem in people with VI. But, the literature did not identify the mechanisms for that improvement in global self-esteem. This thesis appears to be the first research study to address this topic.

In the case study (chapter 4), during the karate programme all of the participants gradually improved all of the components of the EXSEM (exercise self-efficacy, physical self-worth, and global self-esteem), but this trend in the improvement in global self-esteem stopped or even reversed for three participants after completing the programme. This suggests that the karate programme was a factor for their global self-esteem improvement. Participants felt happy at being invited to participate in the karate programme and for the first time, most of the participants received an opportunity to try a new mode of exercise and to feel a sense of achievement in the context of physical activity. However, the social validation results also showed that they criticised the programme because it did not focus on socialization with others and the programme from their perspective was too short (10 weeks). Nevertheless, the participants praised the philosophy of karate that was offered during the training programme reporting its benefits (section 4.2.4). What this study failed to investigate

however, was the martial arts mechanisms for self-esteem improvement. In other words, there appeared to be a need for exploring which parts relating to martial arts help the martial artists with VI to improve their self-esteem.

Therefore, for the purposes of the second study (chapter 5) I interviewed experienced martial artists with VI to explore the possible mechanisms for self-esteem improvement through their lived experience. The martial artists self reported that their global self-esteem improved due to martial arts practice. For the martial artists who lost their sight in early childhood or were born VI, a minimum of 3-weeks of training appeared to be sufficient to improve their confidence and self-esteem. In contrast, those who gradually became VI reported that they needed several months to feel that improvement (section 5.3.2.2.1). The martial artists with VI identified their instructors as one of the main factors that impacted their social self-esteem and consequently global self-esteem. The martial artists' instructors accepted and included them in the dojo, trusted the martial artists, and motivated them so they could achieve their maximum potential. The martial artists also reported that peer socialization in the dojo was an extremely important factor for them to improve their self-esteem. In the environment in which the martial artists felt respected and valued, they created trustful relationships with peers in the dojo mainly because of their hard work (section 5.3.2.2.2.1) and martial arts philosophy which promoted respect. Supporting results from the case study (chapter 4), martial artists from study two (section 5.3.2.2.2.2) reported that intellectual self-esteem has been considered as one of the other causes for their self-esteem improvement. The martial artists stressed the importance of a mastery approach which may be achieved through a grading system and training hard. Intellectual self-esteem also helped the martial artists to improve their body and spatial awareness and subsequently become able to be more independent in daily activities which led to improved global self-esteem.

The third study (chapter 6) found that martial arts instructors believed that their students with VI improved their global self-esteem initially because of being included (section 6.4.3.1). The instructors' discourse indicated that any improvement in the global self-esteem of students with VI was related to them as instructors developing an environment that was strong on inclusion. Thus, within different

themes that inductively emerged from data analysis, the instructors focused on inclusion as a core and important, if not necessary, theme. At least one segment of their philosophical principles for training constructions (e.g. one technique numerous approaches) was based on inclusion (section 6.4.2.2). Moreover, the first strategy for self-improvement of the martial arts students with VI as perceived by the instructors was inclusion (section 6.4.3.1), followed by peer tutoring (section 6.4.3.2) which also elucidates the importance of inclusion and socialization. Supporting findings from section 5.3.2.2.2.2, the instructors believed that their creativeness and motivation towards students with VI also played a significant role in the global self-esteem improvement of the students. The instructors also reported that martial arts as a physical activity contains techniques that improve body awareness which may be positively reflected on the martial artists' global self-esteem. This is in agreement with results from the martial artists in the section 5.3.2.2.2.2.

Table 7.1 demonstrates an agreement that appeared across the three studies focusing on the common points that were reported by the participants.

Table 7.1. Emerged themes associated with global self-esteem improvement.

Most influential factors for GSE improvement	Case study (chapter 4)	Interviewing martial artists (chapter 5)	Interviewing instructors (chapter 6)
Instructors	Invited participants to participate in the programme (social domain)	Accepted and included them (social domain)	Accepted and included them (social domain)
Peer-socialization	Criticised the programme because of limited opportunities for social relations (social domain)	Created friendships that positively reflected on their GSE (social domain)	Used strategies that forced social relations to improve GSE of the martial artists with VI (social domain)
Philosophy	Important for GSE improvement through intellectual self-esteem	Important for GSE improvement through intellectual self-esteem	Important for GSE improvement through intellectual self-esteem
<i>Note:</i> GSE= global self-esteem			

On close inspection of table 7.1 the reader will notice that the social domain of self-esteem and the outcomes of martial arts philosophy, namely intellectual self, seem to have played significant roles in the global self-esteem improvement of people with VI. These two segments were significant in all three studies and therefore appear to have a necessary role in global self-esteem improvement within this thesis.

7.2 The effect of social domain on global self-esteem

Bos, Muris, Mulken, and Schaalma (2006) suggested that self-esteem interventions should not focus only on global self-esteem improvement but also on the specific domain of self-esteem, because self-esteem is a multidimensional hierarchical construct in which an individuals' global self-esteem is affected by self-esteem subdomains such as social, physical, athletic, intellectual, and moral subdomains (Bracken, et al., 2000; Marsh, 1990; Pavey, 2009). Only self-esteem domains that are perceived as important for an individual may impact upon their global self-esteem

level (Harter, 1999). Although there are several correlates of global self-esteem (McMullin & Cairney, 2004) the improvement and maintenance of self-esteem, particularly in children and adolescents, depend on the following two factors: a) perceived competence in areas of importance and b) the experience of social support (Harter, 1999). However, it has been claimed by Wagner (2004) that social competence is considered to be a main component of high self-esteem for persons with VI. Based on the findings from the three studies in my thesis it is clear that the social domain of self-esteem played a significant role in improving the participants' global self-esteem (table 7.1). This appears to support previous research that identified social relationships as one of the main reasons for practicing martial arts among sighted individuals (Jones, et al., 2006; Lantz, 2002) and the argument that martial arts practice improves social acceptance (Winkle & Ozmun, 2001).

The social domain of self-esteem can be influenced by either peers or significant others (Marsh, 1990). Significant others could be parents, siblings, friends, or instructors (Rottensteiner, Laakso, Pihlaja, & Kontinen, 2013; Roux, 2012). Significant others that were identified in this thesis were the participants' instructors and their peers. It was not surprising, therefore, that the social domain of self-esteem arose from two main sources; student-instructor and student-student relationships. In the context of social domain, these two types of relationships have been identified as the two main factors for global self-esteem improvement of people with VI, whereas being excluded by peers affected the participants' global self-esteem (section 5.3.2.1.1). Although inclusion is related to both instructors (Block, 2007; Sherrill, 2004) and peers (Devine & Wilhite, 2000) and published research mainly covers their attitudes towards inclusion of individuals with impairments (Hutzler, et al., 2002), in this discussion I will explain the concept of inclusion within only two different contexts; student-instructor relationships and student-student relationships. However, before that, I would like to discuss the meaning of inclusion and its importance to people with impairments.

7.2.1 Inclusion and its importance for people with VI

In the previous section I pointed to the importance of the social domain on global self-esteem. Previous results have shown that learning and being involved in

inclusive settings can improve social skills and friendships (Schleien, Fahnestock, Green, & Rynders, 1990; Suomi, Collier, & Brown, 2003). Despite various definitions and interpretations of inclusion I do agree that inclusion means a sense of belonging, acceptance, and feeling valued (Sherrill, 2004; Stainback & Stainback, 1990). From this perspective, inclusion has been viewed as a subjective experience in which every individual with impairments has his/her own feelings (Blinde & McCallister, 1998; Goodwin & Watkinson, 2000; Place & Hodge, 2001; Spencer-Cavaliere & Watkinson, 2010). This means that allowing a person with an impairment play within a team when the team is already losing could be perceived, by the person with impairment, as being excluded due to the sense of not being valued (Spencer-Cavaliere & Watkinson, 2010).

Therefore, one should consider whether it is important for people with impairments, namely individuals with VI, to be included to impact their global self-esteem as has been suggested by Harter (1999). My findings from interviewing the martial artists (chapter 5), show that due to social exclusion prior to attending martial arts and being verbally and physically bullied, participants suffered from low self-esteem and depression (section 5.3.2.1.1). Reports from my studies, namely the second study (chapter 5) indicate that people with VI are disabled by society. The participants in my second study faced unequal treatment by their peers and negative attitudes which are considered to be the cornerstones of the social model (Morris, 2001). Because of these social barriers the participants faced activity limitations and exercise participation restrictions. According to the ICF, these barriers are considered to be a definition of disability (WHO, 2001). More importantly, such treatment, where the lack of respect existed, resulted in lower self-esteem and depression of the participants. Therefore, this outcome seems to support others who found a positive relationship between being bullied and low self-esteem (Hawker & Boulton, 2000; Reijntjesa, et al., 2010). Lieberman (2011) claimed that children with VI describe schools as unfriendly places in which they feel teased, ignored and lonely. A significant relationship between being bullied and low self-esteem has been reported in earlier research (Rigby & Slee, 1993; Williams, et al., 1996).

The interviewed martial artists in study two (chapter 5) wanted to be accepted in a mainstream environment, such as the dojo offered. This outcome supports Ponchillia, Strause, and Ponchillia's (2002) findings that 34.6% of their recruited participants (n = 159) belonged to the United States Association of Blind Athletes (USABA) for the purpose of social interaction with others. Also, recent reports have shown that 63% of individuals with VI would prefer to participate in activities with people with and without impairment (English Federation of Disability Sport, 2013). The same survey reports that only 9% and 8% of individuals with impairments would prefer to exercise with people with the same impairment or by themselves respectively. The feeling of being included and the feeling of participation has also been found as one of the most important considerations of children with physical impairment (Hutzler, et al., 2002). Moreover, Coates and Vickerman (2010) found that children with special education needs enjoyed PE classes when they perceived social support, acceptance, and being valued by their peers. Further, individuals with VI appear to want to create relationships with the popular athletic peers rather than popular academic friends (George & Duquette, 2006).

In summary, the participants' reports in this thesis, in agreement with previous studies, suggest that people with VI consider the social domain as an important life domain that impacts upon their global self-esteem, particularly if training in an inclusive environment. Environmental factors for improvement of global self-esteem may be divided into two categories; a) professional factors (professionals, teachers, coaches, instructors, social workers) and b) peer factors (Hutzler, 2003) which is discussed below.

7.2.2 Inclusion by instructor

According to Block (2007) instructors play the most important role and have a significant responsibility in creating inclusive activity settings. Recently, Spencer-Cavaliere and Watkinson (2010) found that only being invited to be involved in exercise was associated to a feeling of being included. This finding concurs with social validation outcomes that were presented in section 4.2.4 which have shown that the participants felt happy because they were invited to take part in the karate programme and perceived themselves to be accepted by the instructor. Such attitude

towards people with VI may motivate the participants with VI to take up martial arts and increase their perception of feeling valued and respected. In contrast to previous research in which PE teachers tended to avoid inclusion due to not having enough academic preparation or lack of knowledge about impairments and people's limitations (Fitzgerald, 2005; Hutzler, et al., 2002; Lieberman, et al., 2002; Robinson & Lieberman, 2004; Stuart, et al., 2006), it was not reported in the three studies of this thesis that instructors had such excuses when they were teaching their students with VI. Explanations for this difference will be further discussed in the philosophy of martial arts section.

Interestingly, the advanced martial artists with VI also focussed on the importance of being accepted, motivated by their instructors and had a relationship based on trust (section 5.3.2.2.2.1). Similarly, the instructors believed that their strategies that mainly embedded inclusion and equal treatment played a significant role in global self-esteem improvement of their students with VI (section 6.4.3.1). Moreover, instructors play a significant role in creating an environment in which respect among all exists and consequently may improve friendship relationships between martial artists with VI and their sighted peers.

7.2.3 Inclusion by peers

A second environmental factor (Hutzler, 2003) which played an important role in the improvement of global self-esteem amongst the participants in study two (chapter 5) was the factor of being included by dojo peers. Previous research has shown that students with impairments in an inclusive setting benefit from such an environment since improved self-esteem is promoted among class members (Daniel & King, 1997). As it has been previously discussed (section 6.4.3.1) inclusion provides opportunity for creating friendship relationships (Block, 2007; Hodge, et al., 2012) due to reduced prejudice and stereotypes as has been suggested by contact theory (Slininger, et al., 2000). Moreover, when individuals with impairments exercise with those without impairments in inclusive settings it may lead to improved global self-esteem of the participants with impairments (Martin & Smith, 2002). This is particularly important for martial arts exercise since practicing martial arts, students discover their own natures and the natures of their peers (Min, 1979). In the dojo

novice students train together but also with those who are at higher levels (belts) (Donohue, 1991) and learn how to respect each other which reflects on their daily lives (Min, 1979). By contrast, Hutchinson, Atkinson, and Orpwood (1998) argued that being treated differently leads people with VI towards feelings of worthlessness, lower self-esteem, and decreased self-confidence. Although Beaty (1994) believed that students with VI in mainstream environments may have low self-esteem due to the feeling of inadequacy, Senicar and Grum (2012) found that adolescents in the mainstream schools achieved significantly higher scores on most of the Self-Description Questionnaire (Marsh, 1992) items, including global self-esteem ($p = 0.011$), compared to adolescents from special schools. The findings from the present thesis are in an agreement with others regarding the importance of instructors (Iedwab & Standefer, 2000; Vertonghen, et al., 2012) and that the instructors have to ensure that everybody in the dojo acquires an equal opportunity to learn and should include everybody through adapting the curriculum according to the abilities of every student (Block, 2000).

Having exercise friends was identified as one of the aspects for feeling included in exercises as reported by children with impairments (Spencer-Cavaliere & Watkinson, 2010). Previous research revealed that being in inclusive settings improves friendship relationships (Schleien, et al., 1990). This friendship development and feeling of comfort with others reflects a greater social acceptance (Hutzler & Bar-Eli, 1993). Blinde and Taub (1999) have argued that athletes with impairments become more included into society because physical activity is socially valued. Although Blinde and Taub did not specify which physical activities were included in their study, participants with physical and sensory impairments reported that they became more socially accepted due to physical activity and that those without impairments improved their views about people with impairments. It may be no wonder then that the athletes in Blinde and Taub's (1999) study reported that they felt a sense of belonging and as part of society. This concurs with the present thesis findings reported in chapter 5 (study 2) and chapter 6 (study 3). A method of peer tutoring that the instructors used to improve contact between their students with VI and sighted students resulted in a perception of acceptance, belonging, and being valued and respected. However, these results should be presented with caution since

previous research found that children with impairments, although being included in mainstream PE classes, were bullied at some point in their PE classes due to their impairment (Coates & Vickerman, 2010). A participant from George and Duquette's (2006) study was integrated in all classes except PE. Moreover, Place and Hodge (2001) observed social interaction between three students with impairments and their peers without impairments during PE classes. Some of the participants that were recruited in this thesis in study two (chapter 5) (e.g. Alan) also reported that they were bullied and teased in the mainstream school (section 5.3.2.1.1). In other words, people with VI are exposed to bullying in mainstream schools (including in the PE classes) in contrast to martial arts dojos. In agreement with findings from my thesis, Hasson-Ohayon, Kravetz, Roe, Rozencwaig, and Weise's (2006) research found that individuals with a mental impairment reported an increase in interpersonal interaction and social support from karate practice. It was also claimed by Min (1979) that those who feel isolated become social persons once they enrol into martial arts clubs.

Furthermore, Goodwin and Peers (2012) reported that people with impairments can feel socially excluded and independent despite inclusive recreational settings. This indicates that regardless of the benefits of inclusion, being integrated in a mainstream setting seems to be a necessary but not a sufficient condition for global self-esteem improvement of people with VI. Therefore, there is a need to distinguish what is specific about martial arts compared to other mainstream exercise settings which promotes inclusion and not just integration.

7. 3 Philosophy of martial arts

Over 20 years ago "martial arts and psychology has become an accepted Medical Subject Heading Term" (Weiser, Kutz, Kutz, & Weiser, 1995, p. 119). Martial arts are considered as an independent approach for psychological improvement such as global self-esteem improvement (Finkenberg, 1990) and decrease in aggression, sleep disturbances, and depression (Fuller, 1988; Trulson, 1986). The three studies in my thesis support that the feeling of being included lies in the philosophy and principles of martial arts. Practicing martial arts with a partner who sometimes needs to perform attacking techniques without any defence requires trust in the partners

(Gleser & Brown, 1988). They further argued that the nature of martial arts which includes bunkai and sparring reflects cooperation which may lead to psychosocial improvement, such as global self-esteem. According to Konzack and Boudreau (1984) students from martial arts clubs become influenced by meditation, breathing, relaxation and importantly develop a sense of group harmony in which students share goals and ideology. James and Jones (1982) also explained that new martial arts students must learn to become united in the dojo, which of course involves a process of interaction in which advanced students learn to accept and help their new peers, whereas the novice will shape a new social identity and learn new behaviours. Again, this process should be supervised by instructors who aim to maintain the true values of martial arts; respect, humility, value, responsibility, honour, and perseverance (Weiser, et al., 1995). All these arguments suggest that martial arts practice affords social and intellectual improvement of its practitioners.

Furthermore, the participants in my three studies reported that because of martial arts philosophy their self-esteem domains improved and consequently caused the improvement of global self-esteem. For example, in the case study (chapter 4) all sessions included karate principles developed by Funakoshi and Nakasone (2003) that were essentially verbally explained (appendix E). The philosophical part of sessions focused on the importance of breathing as a means for better technique performance and relaxation in addition to the significance of fast thinking and reaction that may boost intellectual self-esteem (Fuller, 1988). Moreover, Weiser, Kutz, Kutz, and Weiser (1995) claimed that many martial arts philosophical principles contribute in self-esteem improvement such as relaxation, physical activity and group experience, concentration, assertiveness, and directness and honesty in communication. The social validation results revealed that the participants in my case study considered the principles of karate important and employed them in their life outside the dojo (4.2.4). Therefore, these principles seem to have had a positive effect beyond the karate training on global self-esteem as it was reported by P4 (section 4.2.4, page 130). Therefore, and as it appears from the discussion, martial arts afford namely intellectual self-esteem that has also been reported in my studies as follows.

7.4 Intellectual self-esteem

7.4.1 Perception of not being a victim

Intellectual self-esteem of the participants improved through physical training and possessing self-defence skills although most of the thesis participants were not sparring neither in within their clubs nor in the championships. Most of the martial arts styles divide into two categories; kata (different names may exist for different styles) and sparring. Participants from the case study (chapter 4) did not have any competitions but their sessions were focused on kata and bunkai. However, none of the interviewed martial artists in study 2 (except Alan) or their instructors reported that their goal was competition. Most of them stated that training sessions were based on self-defence skills. Students who are not competing or sparring, even during the trainings sessions, but focus on kata practice, demonstrate their abilities and have been presumed to have an effective ability for self-defence purposes (Back & Kim, 1979). In agreement with Back and Kim, my findings show that possessing self-defence skills increased students' self-confidence and reduced the probability of perceiving themselves as a victim. I believe, this perception improved the participants' self-esteem in that they felt safe. The perception about the self is particularly important for people with VI who have been identified as a group that is more likely to be victimized compared to sighted people (Pinquart & Pfeiffer, 2011; Rounds Jr, 1996). As I discussed previously (section 6.4.2.3), a significant association between being a victim and low self-esteem was found (Rigby & Slee, 1993). Therefore, I support all strategies that aim to reinforce the perception of not being a victim, increasing confidence in one's own abilities, and physical improvement.

7.4.2 The importance of a grading system and mastering skills

It seems that although the martial artists in study two (chapter 5) came from different martial arts backgrounds, most of them shared a similar intellectual understanding about the purpose of martial arts. The martial artists understood that the main purpose of martial arts practice is not competition but self-improvement, which is visible through the grading system, and that competition should never be perceived

as a goal of martial arts practice (Donohua, 2005). This helped the martial artists to master certain skills and to be aware of their own success, regardless of the others, reflecting mastery of the same technique (Gray, et al., 2009). One of the sources for perceiving a mastery approach is the grading system. Grading is usually open to the public with an examining board of senior instructors, and if the students pass the exam, they will possibly feel successful as they are objectively evaluated (Donohua, 2005) and provides a significant source of motivation (Gleser & Brown, 1988). According to Winkle and Ozmun (2001), when martial artists master required skills and as a result gain a prize (in this case a higher belt) their self-esteem and self-confidence are more likely to be improved. Thus, it appears that martial arts as a physical activity is focused on self-development which has been identified as the mastery approach. Yet, because of the grading systems in which martial artists demonstrate their competence, it may seem that martial arts also contain ego tasks (Wang, et al., 2009) which cannot be claimed based on the current results. Grading systems are approval or disapproval for the level of skills improvement and not for the purpose of demonstration. However, taking into account the specific population in my studies, people with VI, who have been excluded and differently treated it is not clear whether “proving” their skills and abilities to the general public impacted on their self-esteem.

Since the grading system is a unique part of martial arts practice (regardless if it is considered to be a goal or not) this part needs to be expanded further. People with VI practice martial arts for different reasons and have different goals. Grading systems reflect skills’ development and every martial artist is aware of that fact. During their martial arts path and when training hard, people with VI want to master the martial arts skills and subsequently receive a higher belt. According to James’s (1983) theory of self-esteem, once the martial artists receive the higher belt, they meet their desires, even if these values were temporary.

$$\text{Self – esteem} = \frac{\text{Success}}{\text{Pretensions}}$$

Moreover, in the third study of this thesis (chapter 6) the instructors reported that the improvement of the philosophical values of martial arts for people with VI was

initially based in the teaching of real life situations. They believed that mastering skills that may be perceived as applicable and practical in real life situations had positive effects on global self-esteem of their students with VI. This is particularly important since a self-defence facet of martial arts is to combine physical and psychological training using different applications to certain techniques depending on the goals and wishes of the students. This suggests that the interviewed instructors sought to meet the needs and wishes of their students. These strategies again support James's (1983) theory of self-esteem.

Furthermore, the martial artists in my studies were not interested in competing against others (although some of them participated in competitions), and therefore they realized the main purpose of martial arts practice; self-improvement, self-control, and self-knowledge (Binder, 1999) rather than winning a tournament or receiving a black belt (Funakoshi, 1973). This intellectual understanding of martial arts has been found to support the improvement of global self-esteem. According to Trulson's (1986) findings, individuals that attended traditional taekwondo with its original purposes (self-improvement) achieved higher self-esteem scores on post intervention measurements, but not in those from modern martial arts programme (their purpose was winning).

In addition, when martial arts students succeed in mastering the required skills, which are difficult, they are aware they have achieved the self-potential goal and consequently improve their intellectual self-esteem. It has been reported by the martial artists (section 5.3.2.2.2.2) and the instructors (section 6.4.3.5), that improving intellectual self-esteem contributed to the martial artists' global self-esteem improvement. Intellectual self-esteem improvement is visible in martial arts. Within different styles of martial arts the students' aim is to simultaneously perceive the whole environment or situation they are in, to evaluate various decisions, and to react appropriately (Cotter, Henley, & Pelham, 1997). According to il-hyeok (2000) focusing on the whole situation rather than on a certain movement of the other partner improves intellectual ability and concentration. Supporting this argument is Hasson-Ohayon et al.'s (2006) study, where participants with a mental impairment (but sighted) reported an improvement in an intellectual ability such as concentration

and memory due to karate practice, and 45% of the participants reported a change in perceived control (self-confidence and body control). However, as il-hyeok (2000) argued, the instructors are considered to be the main generator that teaches students these philosophical principles that improve intellectual self-esteem. Therefore, to improve self-esteem through inclusion and perception of intellectual ability people with VI need to have instructors who would have an attitude of inclusion, the ability to create a social environment and follow affective strategies when teaching people with VI so they can benefit physically, socially, and intellectually.

7.4 Overall conclusion

From the discussion above, it emerges that in order to improve global self-esteem in people with VI the presence of two conditions appear to be necessary; a) being fully included, accepted, and valued, b) improving intellectual self-esteem through achieving a maximum potential with visible results. While in the case study the participants felt happy because they were invited to take part in the study, the martial artists and their instructors clearly stated the importance of being treated equally, accepted and valued. The current thesis findings therefore support Maslow's (1987) hierarchical theory of self-actualization that seems to be applicable for people with VI. In order to be satisfied with one's own self-esteem level, people need to feel accepted, loved, and valued. Consequently, the social domain of self-esteem in different forms; social satisfaction, ability and a desire to meet new people, and feeling accepted has been identified as one of the most important domains that impact global self-esteem across all stages of the life span (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986). Martial arts have been considered as one of the activities that spread and promote a sense of group harmony (Konzack & Boudreau, 1984) since it can be practiced co-educationally (Min, 1979). The instructors used peer tutoring as one of the teaching strategies with their students with VI and according to Hart and Drummond (2014) when teaching people with impairments the following three practical pedagogical principles which appeared across almost all sections of chapter 6 are necessary: a) the principle of everybody (the group is a powerful resource for learning for everybody), b) the principle of co-agency (working together for the purpose of improving) , and c) the principle of trust

(everybody can learn). Although the instructors were not aware of this theoretical background, they were successfully working with their students who were VI.

Similarly to the social domain of self-esteem, due to the importance of intellectual self-esteem and its impact on global self-esteem, previous self-esteem questionnaires included intellectual self-esteem across all life stages (Harter, 1985, 1988; Messer & Harter, 1986; Neemann & Harter, 1986). The questionnaire analysis of the case study (chapter 4) found that the intellectual self-esteem score was improved in all five participants and this was verbally confirmed by martial artists with VI and their instructors. The social validation results reflected the importance of achievements that participants in the case study (chapter 4) accomplished, whereas their advanced peers (chapter 5) felt proud because of mastering martial arts skills and being graded such as their sighted peers. To achieve a higher level (belt), hard work is required. Most importantly, intellectual development through this system is unique for martial arts. This means that within other sports people always compete whereas in martial arts students experience success through their own accomplishments and not by comparing themselves to others (Szucsikiewicz & Maleta, 2007; Winkle & Ozmun, 2001). This actually has been widely accepted as the main purpose of physical activity for persons with impairments, including people with VI. Furthermore, 93% of the participants from Ponchillia et al.'s (2002) study (athletes and non-athletes) reported that sharing experience was more important to them than winning while 92% reported that they focused on improving their self. Nevertheless, this is a critical point as getting better results through self-competition may be achieved in recreational activities (not sports) such as running and swimming and the person can see and feel that improvement. However, Martin and Vitali (2014) stated that no sport/recreational setting that can be identified as exclusively positive on the self-esteem of people with impairments exists. In contrast, and supporting martial arts philosophy, Harter's (1978) theory of competence motivation suggests that getting a higher belt indicates the positive support by significant others (in this case instructors or distinguished martial arts experts), shows higher levels of perceived competence, and crucially provides a sense of internal control which improves global self-esteem (Winkle & Ozmun, 2001).

The importance of the social intellectual, and the physical domains of self-esteem have been identified previously (Harter, 1988; Messer & Harter, 1986; Neemann & Harter, 1986). Consequently, my thesis reinforces the multidimensional construct of self-esteem. People with VI in my studies, such as in the previous literature, focus on the importance of self-esteem domains, namely social self-esteem. Such as it was proposed by the multidimensional self-esteem (Harter, 1999; Marsh, 1990), global self-esteem in people with VI is affected by the social domain despite the importance of other domains that were addressed in the literature but not in my thesis.

However, what emerged from the results, and has not been included in the scales developed by Harter, was James's (1983) contribution of self-esteem (section 5.3.2.2.2.a) and mastery approach. James's theory suggests that achievement as a result of hard work and one's inspiration will produce higher self-esteem. Importantly, when talking about the thesis participants, they considered martial arts important because of the acceptance and their intellectual self-improvement. Consequently, achievement in a desirable domain will positively reflect on the global self-esteem (Harter, 1999; Mruk, 2006).

Therefore, the results of this thesis show that unless these conditions are attained it seems that individuals with VI cannot benefit from martial arts since they would drop out. It has been found that the main reasons for exercise withdrawal are either socially related (followed by friends, others dropped out, cooperation) or self-related (feeling non-competitive, self-respected reasons, other thing to do) (Sit, Lindner, & Sherrill, 2002).

Surprisingly, the EXSEM appears to be as only one aspect of self-esteem improvement explanation in people with VI as its components (exercise self-efficacy and physical self-worth) have been identified as necessary but not sufficient variables for global self-esteem improvement. Although physical self-worth appeared to be strongly related to global self-esteem improvement during the programme intervention in study one (chapter 4), it is notable that the fluctuation of some exercise self-efficacy and physical self-worth domains scores occurred during the intervention period while global self-esteem was improving (figures 4.1.b and 4.1.c). This outcome suggests that other domains (e.g. social and intellectual) plays an

important role in global self-esteem improvement. Furthermore, within the studies presented in chapters 5 and 6, none of the participants reported the EXSEM relevant to global self-esteem improvement. Therefore, when studying people with VI within the exercise context, EXSEM does not seem to be an appropriate or accurate explanation for self-esteem improvement as has been suggested earlier for sighted participants (Elavsky, 2010; McAuley, et al., 2005; Moore, et al., 2011).

Based on this finding and the results from the three studies of my thesis, I constructed figure 7.1 which demonstrates a model of the martial arts mechanisms and strategies for global self-esteem improvement in martial artists with VI. Within the model I perhaps demonstrate all necessary and sufficient steps and factors for global self-esteem improvement of people with VI. Martial arts instructors need to focus on social and intellectual self-esteem when teaching people with VI following the strategies of inclusion (acceptance and peer tutoring) and teaching real situations which will meet their students' needs respectively. Importantly, intellectual improvement, grading system, and achieving maximum potential are the main component of martial arts training whereas inclusion, which improves the social domain in the students with VI, needs to be directly reinforced by instructors regardless of the fact that martial arts promote socialization. Instructors need to accept and support their students with VI and those normally sighted to accept their peers through peer tutoring. Thus, I do agree with Hart and Drummond (2014) that instructors' tasks go beyond the acquisition of knowledge and/or skills, providing an environment built on interactions and respectful relationships in order to provide individuals with impairments the maximal opportunity to be as powerful learners as possible. Consequently, in agreement with Block (2007) martial arts instructors seem to have the important role of the improvement of global self-esteem of people with VI since philosophy and intellectual improvement alone are not sufficient for this improvement. In addition, physical self-worth is likely to be improved through martial arts training, as through most of the other physical activities. Physical self-worth was important for the participants in the first study (chapter 4) in particular, and had the most significant impact on their global self-esteem.

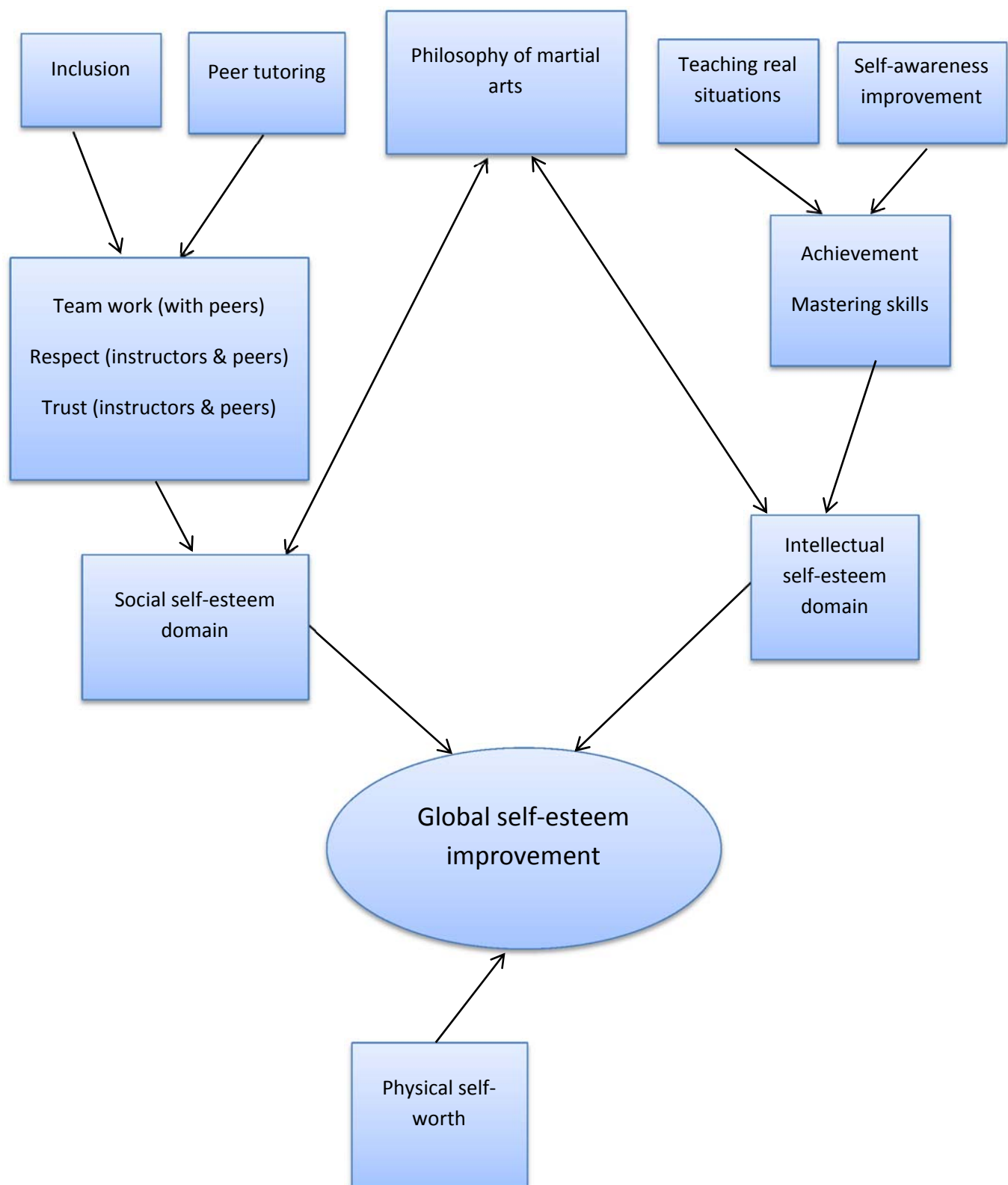


Figure 7.1: A model of the martial arts mechanisms and strategies for the global self-esteem improvement in martial artists with VI

7.5 Implications

The findings in this thesis provide a new insight into the relationship between martial arts and global self-esteem clarifying the values that martial arts provide which lead to the global self-esteem improvement in people with VI. Until now the literature has failed to address these causes in people with impairments in addition to those without. Although this is not the first research to investigate the effect of martial arts on global self-esteem, previous studies did not explore this effect on people with VI.

From the analysis of each of the three studies, (as well as literature review) each study has provided a contribution to knowledge. For instance, the systematic review chapter (chapter 3) was the first review that included different martial arts styles within a review to investigate the effect of martial arts on the components of EXSEM. Also, the study revealed that it does not matter what kind of martial arts people want to practice to gain the EXSEM benefits, reflecting that teaching style and instructors' characteristics and strategies were considered to be important.

To date limited research has investigated self-esteem levels of young adults with VI. In agreement with Papadopoulos et al.'s (2013) study, the findings from study one (chapter 4) show that young adults with VI do not have high self-esteem. Future research therefore needs to focus on this age group and not only on children/adolescents and older people. Moreover, the case study (chapter 4), is the first study in which I developed a martial arts programme for people with VI. To my knowledge, except for one study (Qasim, 2009), previous research did not identify any form of benefits (physical, psychological, social) of martial arts programmes on people with VI. This study for the first time investigated the effect of physical activity on psychosocial facets of people (children, adolescents, and adults) with VI and also explored the psychosocial changes in people with VI after completing any other mode of exercise. This research will hopefully encourage researchers in the field of adapted physical activity to conduct similar researches in order to examine different exercise programmes on psychosocial characteristics of people with VI. Accordingly, we will be able to compare which exercise will deliver better benefits to people with VI and under which circumstances.

Moreover, this was the first study that investigated changes in the EXSEM components after ending practicing martial arts among any sample regardless of age and ability. Importantly, within study one, I applied the EXSEM on people with VI as has been suggested by Moore et al. (2011) who recommended researchers to investigate the EXSEM across different population groups. As my study indicates the EXSEM is not sufficient for self-esteem improvement of people with VI, future research could examine the EXSEM on the other population groups of people with impairments (e.g. physical impairment or hearing loss). Such studies should also aim examining whether the EXSEM is sufficient for self-esteem improvement across people with different impairments or there are some other, more important, self-domains.

Study two (chapter 5) however, revealed that some people with VI have not been treated equally and have not been accepted for decades. Bullying, teasing, and the exclusion of people with VI across all age groups still exists regardless of continued policy and acts of law which calls for equal treatment and the importance of inclusion. Fortunately, this study provides the literature with mechanisms for self-esteem improvement of people with VI through martial arts. Although Brittain (2004) interviewed elite athletes with different impairments including those with VI, there appears to be no research has been conducted interviewing only athletes/martial artists with VI. For the first time, martial artists (with and without VI) had an opportunity to talk about their experiences in martial arts, the benefits they acquired, and its causes (chapter 5). The results of this study identified the importance of social and intellectual domains for global self-esteem improvement confirming multidimensional hierarchical model of self-esteem proposed by Shavelson et al. (1976). People with VI who are seeking for self-esteem improvement now may know that being in dojo they will likely be accepted, respected and valued. In addition, this study will hopefully be a starting point in the investigation on the exercise causes and mechanisms for global self-esteem improvement across different population groups and exercise types. In other words, it would be interesting to investigate whether the same domains will be reported by people with VI from different exercises.

In the last study of this thesis martial arts instructors or sport coaches for the first time talked about their strategies in teaching/coaching people with VI (chapter 6). The instructors for the first time provided concrete examples from their experiences instead of

reported strategies that have been mentioned by scholars in the field of adapted physical activity (e.g. Lieberman, et al., 2013; Sherrill, 2004). Reported strategies therefore seem to be applicable in different contexts (exercises) and not only martial arts. Coaches, namely martial arts instructors, will hopefully increase their awareness about the ability of people with VI and employ reported strategies when teaching this population group. Importantly, it would be interesting to interview coaches from different exercises and to identify the strategies they use when teaching people with VI. Exchanging these strategies among different exercise forms will improve pedagogies, dealing with people who are VI and consequently faster improve their self-esteem.

Crucially, this thesis demonstrates the applied mechanisms and strategies for self-esteem improvement that may be applied in different settings and not only for people with VI. The current studies therefore may contribute in the development of PE curricula and initiate an entirely new direction for research in the fields of organization for people with VI, martial arts, adapted physical activity, and disability and sport federations/associations. Also, investigating these mechanisms and strategies within different exercise context may support and extend the thesis results.

7.6 Recommendations for future practice and research

Recent PE curricula have included martial arts, which has been mentioned as exercises that children with impairments would like to participate in (English Federation of Disability, 2005). Most of the martial artists who were interviewed in study two (chapter 5) reported that they could not continue different exercises for various reasons. Taking into account the benefits that martial arts practice have on people with VI, a part of the UK/Scotland PE curriculum could be similar to most European countries which have introduced martial arts courses during PE classes (Theeboom & De Knop, 1999).

Martial arts clubs however, need to accept students regardless of their ability, which appears to be difficult unless martial arts associations introduce workshops and courses specifically for this purpose. Within such workshops instructors may learn inclusion methods, abilities of people with impairments, and their needs. This process addresses one of the main considerable barriers regarding the teaching of martial arts, which is a lack of suitably qualified instructors. To my knowledge, most of the martial arts organizations

offer courses about the principles of training and examine potential instructors so they become qualified to teach. I am not against the argument of those who work without required qualifications, as within the original martial arts system people did not need qualifications to teach. However, to meet modern coaching methods, instructors need to possess a background in different exercise fields such as anatomy, exercise psychology and exercise physiology and not only martial arts knowledge.

From my research and through contacting people in the field of martial arts and VI, I found very few organizations (except those from judo) across the world that promote martial arts among people with VI (e.g. OneTouch programme; Disability Martial Arts Association; WKF; Seido Karate) in addition to the small number of dojos from which I recruited the participants for the last two studies. Most of these associations began on the initiative of the martial arts instructor who had a student with VI and thereafter expanded the idea of inclusive martial arts. Organizations therefore need to be more active in promoting martial arts among people with VI. I support Szuczkiewicz and Maleta's (2007) argument that martial arts associations can teach and promote traditional martial arts principles parallel to competitions.

Similarly to PE classes and martial arts organizations, organizations for people with impairments, namely VI, may introduce martial arts classes into their communities in which everybody will be included. Responsible individuals for these organizations need to find the instructors who are willing to teach or to learn how to include everybody and promote the values of martial arts (verbally and practically) among all their students.

Finally, if we agree with the previous findings and claims that people with all impairments are very often excluded and treated differently (Brittain, 2004; Fishbein, 1996; Houlihan, 2003) the mechanisms and strategies for global self-esteem improvement in people with different impairments may be the same as in those with VI. Indeed, here is an advantage of martial arts; for a martial arts training approach that accommodates a diversity of skills for all levels, abilities, and ages but importantly very often without compromising the individuality of the activity (Szuczkiewicz & Maleta, 2007; Winkle & Ozmun, 2003). The model that was presented in figure 7.1 subsequently could be applied for people of all impairments regardless their age. Although the participants in the thesis were adults, they reported that prior to attending martial arts clubs they were excluded, they felt they were

not being treated equally or bullied by their peers. Despite the continuous call for inclusion and increased human rights legislation it seems that development regarding this issue is still slow. Thus, responsible organizations and governments need to improve their tools for better inclusion systems and to work on changing attitudes towards people with impairments. This is particularly important since Lieberman et al. (2002) stated that human barriers for including individuals with VI in physical activity can be overcome by changing beliefs, attitudes, and behaviours.

Finally, future research may further explore whether martial arts are considered as mastery tasks or ego tasks in the context of people with VI. This may provide researchers room to further investigate the importance of each of these two types of tasks and consequently compare its relationship to self-esteem.

7.7 Limitations

The experimental research designs, associated protocols, and measurements used within this thesis were robust. However, similarly to all research, there were some limitations that should be discussed. First, I will present general limitations of the thesis that may be applied to more than one study followed by the limitations of each study separately. The limitations, however general or specific, did not have an overall impact on the research.

7.7.1 Limitations applicable to more than one study

7.7.1.1 Components of martial arts

This thesis identified the effect of martial arts practice on the global self-esteem of people with VI, the mechanisms of this improvement, and the strategies that instructors follow to increase the students' global self-esteem. However, most of the martial arts styles divide into three elements: kihon (basics blocks, punches, and kicks), kata, and sparring (Weiser, et al., 1995). Within the thesis I did not address whether learning only one or two parts of these three components could improve global self-esteem of people with VI. Although results from the literature review and studies 2 and 3 propose that having a good instructor, regardless of the style of martial arts, is the most important factor for the students' improvement, it is still unknown that if the students practiced only one element (for

example kihon) they would benefit from the training such as those who practiced all three parts.

7.7.1.2 Diagnosis of VI

The VI of the participants was based on their personal reports and not on the medical records. Being able to have access to the medical reports would assure that I would have detailed information about VI of the recruited participants. An external classification would enable me to plan a karate programme earlier. However, this limitation did not impact on the results of the thesis since all of the participants (in the studies 2 & 3) either reported that they have been medically diagnosed as VI/blind or in some way expressed that they had difficulties in performing the ADLs or had significant psychosocial consequences due to their sight. Instructors that I interviewed were teaching the martial artists who were interviewed in study 3 and they all believed that they were teaching martial artists who were VI.

7.7.1.3. Face to face interviews

Due to geographical and funding limitations, interviews with a group of participants (studies 2 & 3) were conducted face to face whereas those outside the UK were conducted via Phone/Skype. Interviewing all participants face to face would allow me to have less missing data (although the missing data was not significant quantitatively or qualitatively due to the richness and saturation of data) and to identify the facial expressions and body language of all participants (Basit, 2010). However, this difference in the approach did not significantly impact the results since no significant difference between the approaches was found (Irvine, et al., 2010; Stephens, 2007).

7.7.2 Study specific limitations

7.7.2.1 Study 1

A quantitative data in the case study were presented visually following visual inspection and utilizing a graphical approach as outlined in (Barker & Jones, 2008; Barker, et al., 2013; Jordet, 2005; Mellalieu, et al., 2009) but did not utilise statistical analysis because of the small sample size. A second reason for using non-statistical method is that in order to employ statistical analysis in the multiple baseline designs data in each phase (baseline and

intervention) they would need to be autocorrelated with at least ten scores in each phase (Crosbie, 1993). However, Parker and Brossart (2003) found that autocorrelation vary using different analysing techniques. Trying to resolve this problem I contacted Andy Field, the author of “Discovering Statistics Using SPSS” book, who gave me a link to the personal page of Professor John Crawford from the University of Aberdeen. However, Professor Crawford said that he was not an expert on “my scenario” and therefore he could not provide the answer but advised me to read single case study books that probably may address the topic. To obtain more objective results as has been suggested by Barker et al. (2011), I recommend introducing statistical analysis in addition to graphical data (Parker & Brossart, 2003) once the appropriate technique for autocorrelation is agreed.

In addition, I contacted two martial arts instructors in Edinburgh regarding their involvement in teaching people with VI martial arts as they have an experience in the field. They were not interested in the research and therefore I ran all karate sessions by myself. Therefore, being aware that I was a researcher and instructor, I tried to avoid a potential bias that could exist and therefore Schulz and Grimes (2002) suggested that such studies should be judged on overall quality instead of one principle. However, caution should be taken into account and following is an explicitly of avoiding the potential biases in my first study.

According to Schulz et al. (2002) within non-blinded studies participants’ responses could be affected due to their expectations of desired outcomes. In the information and consent sheet I did not inform the participants about the benefits they may gain from the karate programme (appendix D). Within the same appendix, it is clear that I did not mention the EXSEM and its mechanisms, and results of the study indicate that the participants were not familiar with self-esteem construct and EXSEM. For instance, two participants (P3 & P4) achieved high exercise self-efficacy scores during the baseline measurements (figures 4.1.c and 4.1.d) and accordingly challenged the application of EXSEM in people with VI, which was one of the purposes of the study. Results of the study indicate that the bias was avoided as at least one of the participants at some stage achieved unexpected scores or opposite to the aims of the intervention (figure 4.1.b) and criticized the karate intervention programme for not providing them an opportunity to be more socialized. In addition, I did not make friendship relationships with the participants at any stage of the study. In

addition, it has been argued that non-blinded assessors expect an improvement to occur and therefore may apply more generous analysis to the programme, which could be more relevant to the studies with subjective outcomes of interest (Schulz & Grimes, 2002). A potential risk of transferring my inclinations or attitudes to participants as suggested by Wolf (1950) was avoided. He argued that a person who is a researcher and delivers interventions may encourage or discourage participants to continue the trial. Within the information and consent sheet the participants were informed that they could withdraw the karate programme at any time without giving any reasons (appendix D), in addition that all participants continued the karate programme, and this indicates that I did not discourage any of them to continue the trial.

7.7.2.2 Study 2

Due to the small number of the potential participants (small prevalence of individuals with VI and small prevalence of martial artists with VI) at the beginning of this study I thought that wide age range could form a limitation of the study. Simply, I thought that being VI 30-40 years ago is not same as being VI today. Since the martial artists reported that all of them faced the same challenges, being excluded and not accepted, the age was not a limitation. However, if I had participants from the other martial arts styles such as tai chi it would be interesting to examine whether they share the same opinion about the mechanisms for their global self-esteem improvement. Although I have not found individuals with VI who have been practicing tai chi, their experience could probably identify differences between this slow and soft style compared to the more hard styles (e.g. krav maga, karate, taekwondo).

7.7.2.3 Study 3

Such as in the previous study, none of the interviewed instructors was teaching tai chi or a similar martial arts style. This could provide more information regarding the importance of imagination and philosophy of martial arts compared to the importance of physical training. Moreover, observing the training sessions could also provide me a better picture of the strategies and the strategies that the instructors used in their sessions but this was not physically possible to do, particularly taking into account that 5 of the instructors were not from the UK.

7.8 Final conclusion

This thesis demonstrates the mechanisms and strategies for self-esteem improvement in people with VI through martial arts. In contrast to different self domains (e.g. academic achievement, humour, behavioural conduct, job competence, romantic appeal, close friendship), according to the current results it is hoped that researchers and practitioners working in the field will particularly focus on the improvement of three domains; social, intellectual, and physical, that appear to be necessary and sufficient elements for self-esteem improvement in people with VI. It is important to notice that socialisation and necessary strategies for its improvement of peer tutoring, team work, relationships based on trust and respect require an additional effort, namely by instructors to create such environment. It is instructors' responsibility to build the environment in which inclusion, respect, and equal treatment will be promoted (Block, 2007). Consequently people with VI will not feel discriminated but instead truly accepted and valued. By contrast, intellectual and physical abilities of people with VI are expected to be improved through the regular martial arts sessions in which considering individual differences and abilities is essential. Importantly, to receive the maximal intellectual benefits from martial arts practice instructors should offer their students with VI an opportunity to feel and demonstrate their skills reflecting mastery approach (Gray, et al., 2009) either through grading system or any other self-competitive methods. Similarly, it is not sufficient for people with VI to increase their physical abilities but they should be aware of this improvement which may also be met through mastery approach. The results of this thesis suggest that EXSEM is not sufficient, as has been assumed for normally sighted people (Sonstroem, et al., 1994) to explain global self-esteem improvement in people with VI.

Furthermore, this thesis helps martial arts instructors to realize how to teach people with VI, whereas people with VI, who are interested in learning martial arts, now know what to expect in dojos, what to look for, and importantly may increase awareness of the potential achievements. In addition, and probably most important, practicing martial arts seems to be an assurance for maintaining high self-esteem. In other words as long as people with VI are practicing martial arts they may have relatively good global self-esteem.

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Appendices

Appendix A – Publications

The Effect of Karate Practice on Self-Esteem in Young Adults with Visual Impairment: A Case Study

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ABSTRACT

Previous research has not examined the potential relationship between physical activity interventions and psychological domains of young adults with visual impairment (VI). This study aimed to investigate whether karate practice improves the self-esteem of young adults with VI. A secondary aim of this study was to explore the exercise and self-esteem model (EXSEM) on young adults with VI. Following a non-concurrent multiple baseline approach, four males and one female (age range 19-40 years) with VI participated in this study. Four undergraduate students completed the Self-Perception Profile for College Students and one postgraduate student completed the Adult Self-Perception Profile. All participants completed the Physical Self- Perception Profile and the Exercise Self-Efficacy Scale. When the score stability was attained the intervention was introduced. Each participant attended a 60-minute karate session twice a week for 10 weeks at the University of Edinburgh. The students completed all questionnaires every two weeks during the karate program and a visual inspection approach was used for data analysis. Visual inspection showed that four participants improved their global self-esteem. Self-efficacy was improved in three participants whereas the other two had high self-efficacy before participation in the karate program. Most of the physical self-perception domains were improved for all five participants while one participant did not improve one domain of the physical self-perception. Findings suggest that karate practice may improve self-esteem, physical self-perception, and exercise self-efficacy in young adults with VI.

Keywords: Karate, Self-esteem, and EXSEM

INTRODUCTION

Physical inactivity during childhood, adolescence and early adulthood may be associated with future health problems such as cardiovascular diseases, obesity, and cancer (van Oostrom et al., 2012). Although physical inactivity is a major health concern for all, Lieberman et al. (2010) believe that people with impairments are at a higher risk of developing sedentary lifestyle. Other studies (Kozub & Oh, 2004; Lieberman, et al., 2010; Lieberman & McHugh, 2001; Longmuir & Bar-Or, 2000; Skaggs & Hopper, 1996), have also found that children and adolescents with visual impairment (VI) are less physically active and in poorer physical condition than sighted peers. Unfortunately, sports participation in adolescence is one of determinants for leading an active life during adulthood (de Montes, Arruza, Arribas, Irazusta, & Telletxea, 2011; Stuart, Lieberman, & Hand, 2006) and growing evidence shows that being active when young can influence the level of physical activity later in life (Buckworth, Dishman, O'Connor, & Tomporowski, 2013).

For instance, Tammelin (2003) evaluated the association between participation in different adolescent sports and physical activity in adulthood. A follow-up survey included 7794 males and females who completed the questions about their physical activity at the age of 14 and at the age of

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31. Participation in sports after school was associated with a high level of physical activity later in life, and this outcome has been supported recently by (Houotari, Nupponen, Mikkelsen, Laakso, & Kujala, 2011). They conducted a 25-year follow-up study to explore how sport participation in leisure time during adolescence predicts leisure-time physical activity in adulthood. In their study 1525 males and females completed muscular fitness, agility, aerobic capacity, and self-report weekly frequencies of activity when they were adolescents and 25 years later (1976-2001). Results showed that activity in adolescence predicted activity in adulthood in both males and females and the risk for adult inactivity was significantly lower for those who were physically inactive in adolescence.

Since children and adolescents with disabilities seldom participate in exercise and physical activity (Longmuir & Bar-Or, 2000) they are more likely to be inactive with increasing age. From this perspective, children and adolescents with VI are worthy of further study as they are less engaged in physical activity than sighted children and adolescents (Sport England, 2001) and less involved in physical education classes than the curriculum standard (Atkinson & Black, 2006). Although previous literature did not explore whether people with VI who were inactive in childhood are inactive later in life, Kozub and Oh (2004) reported an inverse relationship ($r = -.75$) between age and physical activity level among children and adolescents with VI. Another study (Ayvazoglu, Oh, & Kozub, 2006) examined the relationship between the physical activity level of children with VI and the physical activity of their parents/siblings. Five families and six children with VI participated in the study, physical activity was monitored whilst they wore accelerometers for seven days, and open-ended interviews were conducted with the parents. Quantitative findings revealed that younger children were more active than older participants.

The results above indicate that both normally sighted and people with VI become more inactive with increasing age from childhood toward adulthood. Further, children with VI are less physically active than sighted people. However, to date evidence suggests that young adults with VI need to be more physically active (Kakiyama, Koda, & Matsuda, 1999; Willis, Jefferys, Vitale, & Ramulu, 2012). Sherrill et al. (1984) found that adults with VI reported little involvement in physical education classes during childhood/adolescence and reported lack of encouragement to develop physical/recreational activities. More recently, Holbrook et al. (2009) studied men and women with mild VI ($n=8$), moderate VI ($n=9$), and severe VI ($n=8$). Physical activity levels were quantified with a Step Activity Monitor for a 7-day period. In their study participants' averaged 8,028 steps a day, which was below the physical activity recommendation of approximately 10,000 steps per day (Tudor-Locke & Bassett, 2004). Furthermore, the authors highlighted that this volume of physical activity (8,028 steps a day) was similar to the values reported among older adults ($M=79$ years) with functional limitations (Cavanaugh, Coleman, Gaines, Laing, & Morey, 2007). Willis et al. (2012) explored how accelerometer-measured physical activity is affected by VI and uncorrected refractive error. All participants ($n=2852$) were older than 20 years and divided into three groups: VI, uncorrected refractive error, and normal sight. Results showed that adults from the first group (those with VI) scored significantly less steps per day and were significantly less engaged in moderate or vigorous physical activity ($p \leq .01$).

Benefits of physical activity, the consequences of physical inactivity, and its relationship to psychological and social aspects have been established in the literature. Many different psychological and social health benefits of physical activity participation were reported for children and adolescents (Eime, Young, Harvey, Charity, & Payne, 2013b) and adults (Eime, Young, Harvey, Charity, & Payne, 2013a). Self-esteem was the most commonly being improved domain for children and adolescents (Eime, et al., 2013b). A positive impact of physical activity participation on self-esteem in children and adults has been previously reported by others (Ekeland, Heian, Hagen, Abbott, & Nordheim, 2009; Spence, McGannon, & Poon, 2005). Self-esteem is particularly important since it is positive self-regard, self-worth, or overall good feelings about self which is as the best indicator of the well-being of the self-system and an overall measure of success of the self-system (Sherrill, 2004).

However, studies of psychological aspects (including self-esteem) and physical participation of young adults with VI are scant and further study is warranted. Apart from one recent study (Papadopoulos, Montgomery, & Chronopoulou, 2013) previous research has failed to investigate the self-esteem level of young adults with VI as their studies have focused on children and adolescents

(Shapiro, Moffett, Lieberman, & Dummer, 2008). In the Papadopoulos et al. (2013) study among 108 adults ($M=34.81$ years, $SD=11.35$ years), people with VI achieved significantly lower self-esteem score on the Rosenberg self-esteem scale than those with normal sight.

To our knowledge there is only one study (Papadopoulos, et al., 2013) that included young adults to investigate self-esteem level of people with VI. However, they did not explore the relationship between exercise and self-esteem. The exercise and self-esteem model (EXSEM) (Sonstroem, Harlow, & Josephs, 1994) has been considered as a potential help for researchers to understand the relationships between exercise engagement and self-esteem (McAuley et al., 2005). For example, Moore et al. (2011) aimed to determine whether changes in response to resistance training of college students followed the hierarchical structure of the EXSEM. Since their results appeared to support the EXSEM, the authors strongly recommended examining the EXSEM with different population groups. Within the EXSEM it is assumed that exercise improves exercise self-efficacy which improves physical self-worth (sport competition, sport conditioning, body attractiveness, and physical strength) to better global self-esteem (GSE).

Martial arts are considered to be a unique form of exercise that focuses the correct mental and physical participation and not simply on winning or receiving extrinsic reward such as a black belt (Funakoshi, 1973). Traditional martial arts practice is not limited on teaching self-defence, but involves philosophical and ethical teachings to be applied to life. They have a high degree of ceremony and ritual, emphasize the integration of mind and body, and have a meditative component (Binder, 1997). Further, martial arts improve practice improves socialization (Lantz, 2002) intellectual ability (Ryan, 2008) and morality (Lantz, 2002). Previous studies have shown a positive impact of martial arts on exercise self-efficacy (Caldwell, Harrison, Adams, & Triplett, 2009), physical self-worth (Li, Harmet, Chaumeton, Duncan, & Dincan, 2002; Linxuan, 2011), and GSE (Brown et al., 1995; Lee, Lee, & Woo, 2010; Mustian et al., 2004; Yin, 2006).

Therefore the purposes of the present study were to:

- a- investigate the effect of martial arts program on self-esteem in young adults with VI through the EXSEM.
- b- provide descriptive analyses of self-efficacy, physical self-perception, and self-esteem levels in young adults with VI.

METHODS

In order to recruit participants, a description of the present study was outlined and sent to the disability offices at both the University of Edinburgh and Edinburgh Napier University. Six students subsequently contacted the researchers for further information. More detailed information about the study was emailed to the six respondents. However, one student did not respond and therefore only five young adults (four males and one female) were recruited for this study. Profiles of these students are presented in table one below.

Measures

Following the EXSEM, three questionnaires were used:

Exercise Self-Efficacy: The Exercise Self-Efficacy Scale (EXSE) (McAuley, 1993) was used for all five participants. The scale was developed for sedentary middle aged adults and consists of 8 questions in which participants have to rate their confidence to participate in moderate physical activity 3 times for more than 40 minutes during the next week, the next two weeks; and so forth until the eighth week. The following is an example of the first item of the EXSE: "I am able to continue to exercise three times per week at moderate intensity, for 40+ minutes without quitting for the NEXT WEEK". Since no one particular activity exists within the phrase "exercise", using this scale with such items can include karate.

Table 1: Profiles of the five student participants

Participant	Age (years)	Gender	University level	Visual impairment
P1	19	F	Undergraduate	6/60
P2	19	M	Undergraduate	Visual field of 5° & 10°
P3	24	M	Undergraduate	6/18
P4	38	M	Undergraduate	2/60
P5	40	M	Postgraduate	Monocular blindness

Notes: P1= participant one, P2= participant two & so forth.

Also, this scale captures variation in mode of activity rather than focusing solely on aerobic activity (Elavsky et al., 2005), and meets Bandura's (2006) recommendations for a scoring system. The items on the EXSE scale were ranked on the basis of a 100-point percentage scale composed of 10-point increments, ranging from 0% (not at all confident) to 100% (highly confident). The scale has been used with disabled people in a previous study that included young participants aged 22 years (Motl, McAuley, & Snook, 2007). They reported internal consistency based on coefficient alpha for the EXSE .99. This high internal consistency of .99 was also found in older participants (Hu, McAuley, & Elavsky, 2005).

Physical Self-Perception: Physical self-description questionnaire (PSDQ) developed by (Marsh, Richards, Johnson, Roche, & Tremayne, 1994) and Richards Physical Self-Concept Scale (Richards, 1988) are similar to the Physical Self-Perception Profile (PSPP) (K. Fox & Corbin, 1989) and were designed for the same purposes. However, whereas Sabiston et al. (2012) reported that the PSPP and PSDQ are the best measures for physical self-perception, Sonstroem et al. (1994) expanded the EXSEM to include the PSPP but not the PSDQ. Therefore, it was decided to use the PSPP in our study. It consists of five 6-item scales of sport competence, physical condition, body attractiveness, physical strength, and physical self-worth. The PSPP was designed to reflect the advances developed by Harter (1985) and Shvaelson et al. (1976) in identifying the physical self as an important construct to measure in its own right, and to reflect the multidimensional hierarchical nature of the physical self (Marsh & Cheng, 2012). Each PSPP item consists of two opposite descriptions e.g "Some people are very competitive" but "Others are not quite so competitive". Participants have to choose the description that best fits and then indicate whether this description is sort of true or really true for them, using a 4-point Likert scale.

Self-esteem: The Self-Perception Profile for College Students (SPPCS) (Neemann & Harter, 1986) was used for the four undergraduate students and the Adult Self-Perception Profile (ASPP) (Messer & Harter, 1986) for the postgraduate student. These two scales follow a multidimensional approach of self-esteem which has been preferred in the literature, particularly when exercise interventions are present (Buckworth, et al., 2013). Reliability of the SPPCS and ASPP ranged between 0.76-0.92 and 0.63-0.92, respectively. Although Fox (1990) recommended using Rosenberg's Self-Esteem Scale (Rosenberg, 1965) accompanied with the PSPP, it was not considered appropriate for the present study as this study explores not only GSE but also self-esteem domains (such as intellectual, social, and morality). The SPPC and ASSP items consists of two opposite descriptions e.g "Some adults like the way they are leading their lives" but "Other adults don't like the way they are leading their lives". Participants have to choose the description that best fits and then indicate whether description is somewhat true or very true for them, using a 4-point Likert scale.

Although the SPPC and ASSP consist of 12 and 11 domains respectively, we will include only those that have been related in previous studies somehow to martial arts, namely; social acceptance (Jones, Mackay, & Peters, 2006; Lantz, 2002), intellectual ability (Ryan, 2008) and morality (Lantz, 2002). To our knowledge previous research has not reported any link between martial arts practice and scholar achievement, parental relationship, humor, job competence...etc.

Social validation: When the 10- week karate program was completed the participants answered social validation questionnaire. Study participants responded on a 1 (not at all) to 7 (very much so) Likert scale to the following four questions:

- (a) How important to you is improvement in exercise self-efficacy, physical-self-worth, and GSE?
- (b) Do you consider any of these improvements that have occurred to be significant?
- (c) How satisfied were you with the program?
- (d) Has the procedure proved useful to you?

To get in-depth answers such as recommended by Page and Thelwell (2013) and following Mellalieu et al. (2009), additional open-ended questions were utilized in an attempt to better understand the participants' perceived underlying reasons for the relative success or failure of the karate program. This audio-recorded interviews were semi-structured and focused on the three themes about the program (Martin, Thompson, & Regher, 2004), namely: participants' opinion about the goals of the program; participants' opinion about the program procedure; and participants' opinion about the results produced by the program procedure.

Procedures

Ethical approval for the study was granted by the ethics committee in the Moray House School of Education at The University of Edinburgh. The lead researcher met the participants individually and administered the informed consent process. After receiving the informed consent sheets the participants answered the three questionnaires several times (using large print or verbally) until the stability of dependent variables was found. Each participant completed the questionnaires during this stage within 12 weeks. Time between two subsequent measures varied between 2 and 6 weeks. When the stability (more details are available in data analysis) was found for each participant, he/she completed a Physical Activity Readiness Questionnaire (PAR-Q) which preceded the karate program. After four, six, eight, and ten weeks of the program the participants completed the questionnaires. This process is called a multiple baseline approach AB and according to Barker et al. (2011) represents one of the key methods for determining intervention effectiveness in applied research.

For the purposes of this study we used a non-concurrent multidimensional staggered baseline approach developed by Watson and Workman (1981) who claimed that this approach provides flexibility and has been considered as practical. According to Harvey et al. (2004) the non-concurrent designs could be arranged for different semesters and when the participants become available (Fox & Boliek, 2012; Watson & Workman, 1981; Wong, 2010). The flexibility was important for this study because the participants were university students at different levels and from different universities. Furthermore, some of participants were not from the UK and had to go to their own country at different times. Not all participants therefore were available at the same time. In this study, two participants started the intervention for 10 weeks, while the other three started their 10-week karate program during the intervention at different times. Therefore, the participants did not complete the sessions together (N=5) and were training as a group for only one and a half week.

Karate program

The participants attended our 'traditional' karate program twice a week (60 minutes per session) for 10 weeks. Although no concrete evidence has shown the necessary time for self-esteem improvement, previous literature has focused mainly on interventions that lasted between eight to twelve weeks (Linxuan, 2011; Taylor-Piliae, Haskell, Waters, & Sivarajan Froelicher, 2006; Yang, 1997; Yeh et al., 2013). For example, Yeh et al. (2011) found that a 12-week of martial arts practice were enough to improve exercise self-efficacy in people with heart failure (M=67 years, SD= 11 years). Similarly, a 11-week of taekwondo practice were enough to improve GSE in children (Yang, 1997) whereas 8-week of taekwondo program improved physical self-worth and GSE in college women students (M=22.61 years) (Finkenberg, 1990). Therefore, we considered ten weeks as an appropriate period to show changes in self-esteem that could be associated with our karate program.

Following the example of others (Graham, 2007; Reeves, Nicholls, & McKenna, 2011; Shearer, Mellelieu, Shearer, & Roderique-davies, 2009), all sessions were led by the first author due to his karate qualifications as a coach (3rd Dan holder and 3rd level coach) and previous experience in teaching people with VI karate (about three years of experience). The sessions were held privately in one of the sports halls at the University of Edinburgh. During the training period all participants completed basic blocks, stances, punches, kicks and the first Kata (Heian Shodan). Kata is a form of predetermined series of movements that are performed against imaginary opponents (Doria et al., 2009). Although all participants had to complete Heian Shodan, teaching pedagogy and methodology were differentiated to accommodate the different visual abilities among participants. All sessions included physical training in addition to karate principles developed by (Funakoshi & Nakasone, 2003).

Data analysis

The two standard deviation (2-SD) (Shewhart, 1931) band method was used to compare the scores from each of the EXSE, PSPP, SPPCS, and the ASPP during the baseline. The 2-SD band method is known as statistical process control charts (SPC) (Orme & Cox, 2001). A process is said to be in control if the distribution of the data appears to be statistically stable over time (Wild & Seber, 2000). The SPC charts consist of three elements; a central line which usually represents the mean (CL), upper and lower control limit (UCL and LCL respectively) corresponding to \pm two standard deviations from the CL and are drawn as dashed lines parallel to the CL. The most appropriate chart for this study was X-mR-Chart (moving range chart) since it has been determined as useful in human single case experiments when the number of data points is relatively small (usually between 2-10), and when individual variability is high (Ottenbacher, 1986). If the process under study is producing normally distributed data points then 95% of the data points will fall within 2 SDs.

Visual analysis is a traditional basic method to analyse single-case research data and comprises visually inspecting data and judging whether an intervention had produced a significant change in the dependent variables (Kinugasa, Cerin, & Hooper, 2004). Visual analysis has been used in research as a method for identifying the effect of an intervention (Parker & Brossart, 2003), including sport-related studies (Barker & Jones, 2008; Jordet, 2005; Mellalieu, et al., 2009). Despite of the limitation that visual inspection has (subjectivity) (Barker, et al., 2011), Barker et al. (2013) reviewed 66 single case studies in the period from 1997 to 2012 and found that all of them employed both visual analysis and graphical procedure compared to 16 studies that used statistical analysis. Therefore, in the line with previous studies in the field, visual inspection was utilized to determine the impact of our karate program on the study variables.

RESULTS

Each participant's rating of the variables was graphed to provide a visual inspection of the effectiveness of the program. Following the EXSEM the figures below (figures 1a to 1e) show the three main variables of the EXSEM (exercise self-efficacy, physical self-worth, and GSE) for each participant during both the baseline and the karate program.

Table two (below) shows the EXSE mean score in the baseline and during the karate program period. The three participants (P1, P2, P5) with low baseline EXSE improved their EXSE scores during the karate program whereas, the other two (P3 and P4) had relatively stable scores.

In Table three, mean scores of the PSPP domains for the baseline and during the karate program are presented. Almost all of the physical domains were improved during the karate program for all five participants, the exception being physical strength for P2.

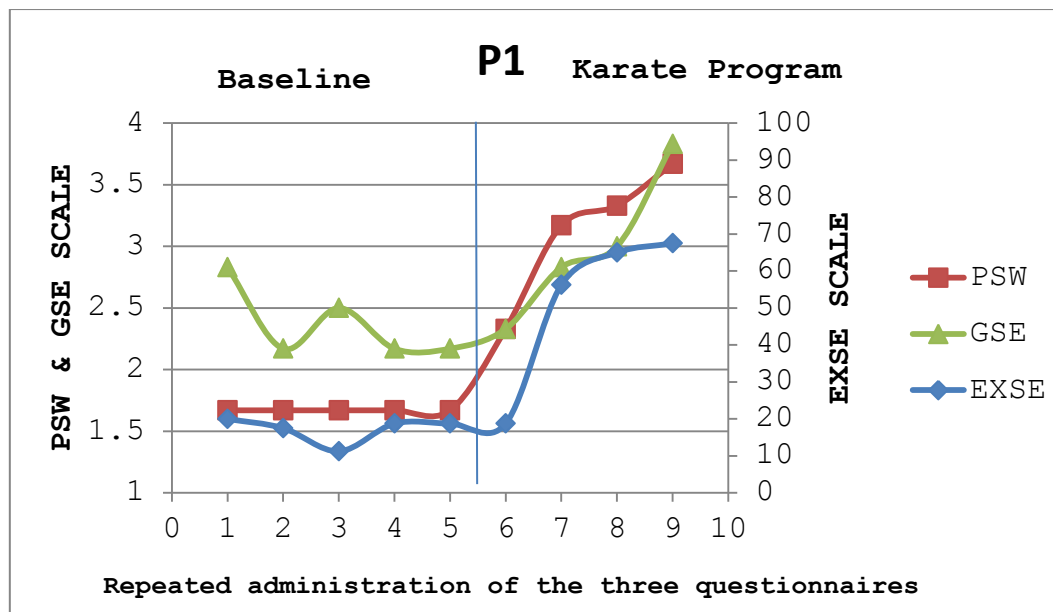


Figure 1a: The five repeat baseline questionnaire repeat measurements across a 3-month period, as well the four repeat questionnaire measurements during the 10-week karate program for each individual participant. Figure 1a is data from participant 1 (P1).

PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

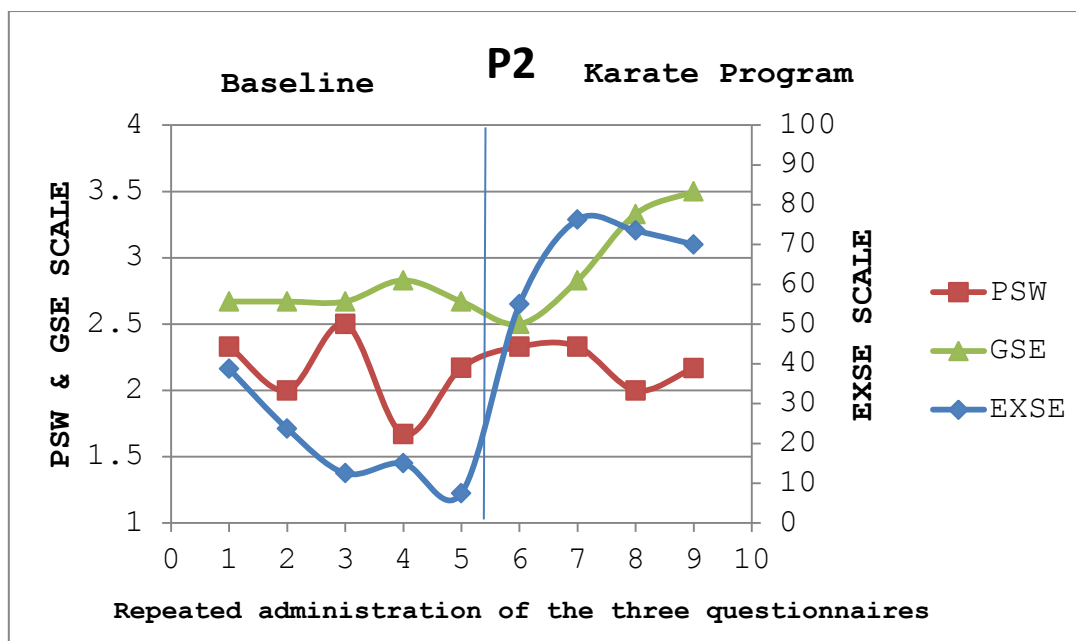


Figure 1b: Participant 2 (P2).

PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

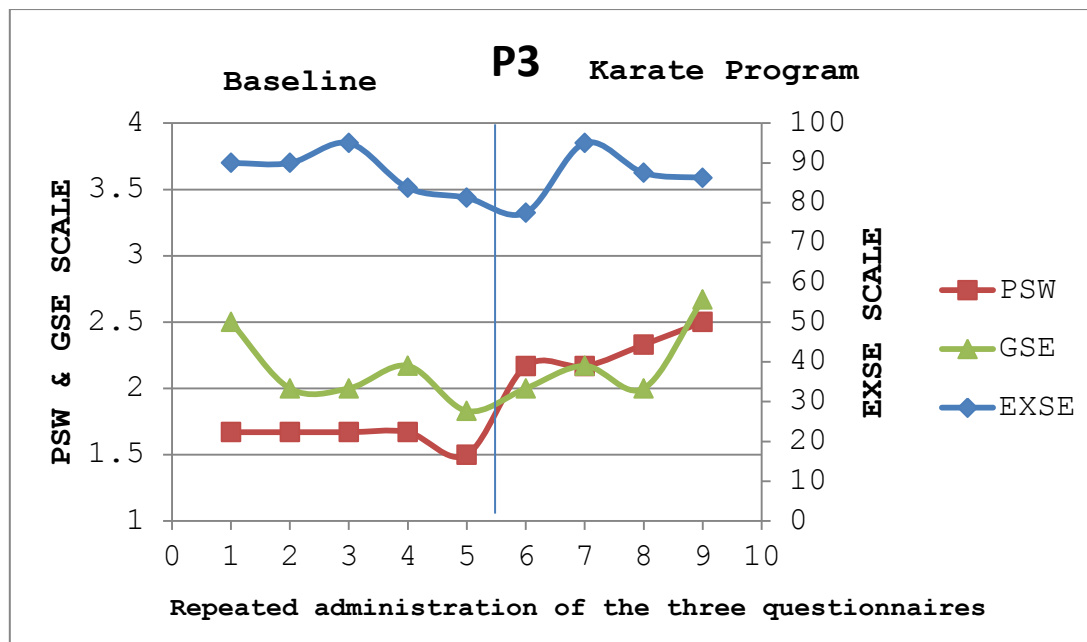


Figure 1: Participant 3 (P3).

PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

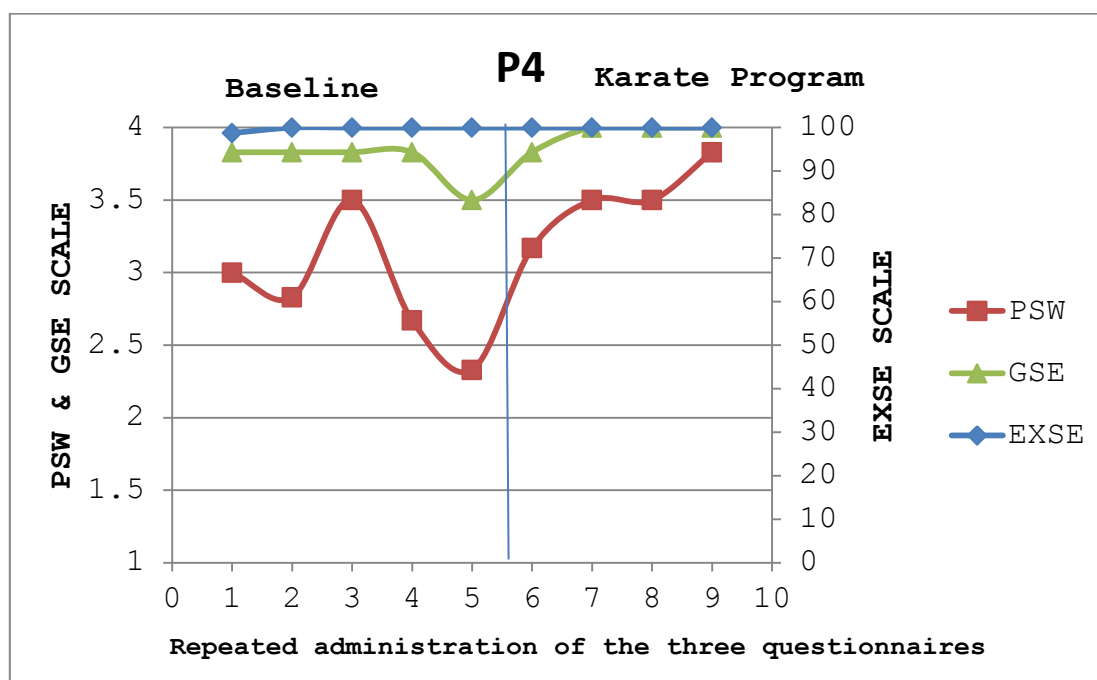


Figure 1d: Participant 4 (P4).

PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

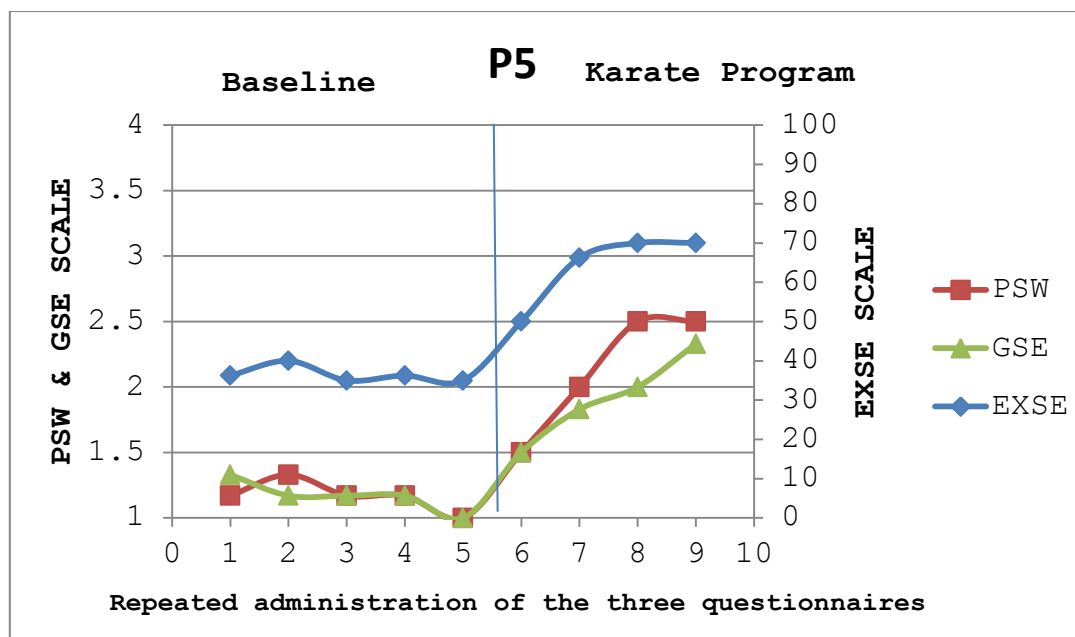


Figure 1e: Participant 5 (P5).

PSW= Physical self-worth, GSE= global self-esteem, EXSE= exercise self-efficacy

Table 2: Exercise self-efficacy mean scores during both baseline and the karate program for each participant (N=5).

Participant	P1		P2		P3		P4		P5	
Mean	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Score	17.25	51.87	19.5	68.68	88	86.56	99.75	100	36.5	64.06

Notes: P1= Participant 1, P2= Participant 2 and so forth.

M1= Mean score at the baseline, M2= Mean score during the karate program

Table 3: Physical self-perception profile domains mean scores during both baseline and the karate program for each participant (N=5).

Variable/Participant	P1		P2		P3		P4		P5	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Sport competition	1.79	2.20	1.37	1.83	2.1	2.37	3.57	3.75	1	2.04
Sport condition	1.6	3.41	2.47	2.54	2.34	2.75	2.77	2.84	1.47	2.38
Body attractiveness	2.26	2.79	1.5	1.92	2	2.42	2.5	2.96	1	1.08
Physical self-worth	1.67	3.13	2.13	2.21	1.64	2.29	2.87	3.5	1.17	2.13
Physical strength	1.8	2.92	3.17	2.83	1.83	2.13	2.13	2.96	2.1	2.67

Notes: P1= Participant 1, P2= Participant 2 and so forth.

M1= Mean score at the baseline, M2= Mean score during the karate program

Table 4: Self-esteem domains mean scores at baseline and during the karate program for each participant (N=5).

Variable/ Participant	P1		P2		P3		P4		P5	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Social	2.1	2.81	2.65	3.13	2	2.5	3.6	3.75	1	1.56
Intellectual	2.4	2.69	3	3.5	2.31	2.5	2.9	3.38	1.1	1.38
Morality	3.3	3.25	3.5	3.75	2.95	3	3.55	3.94	3.65	4
Athletic	1.9	2.81	1.2	1.88	2.7	2.75	3.55	3.63	1.1	2.31
GSE	2.39	2.99	2.7	3.04	2.1	2.21	3.76	3.96	1.17	1.92

Notes: mean scores of social acceptance, intellectual ability, morality, athletic competence, and GSE.

Baseline and during the program mean scores for social acceptance, intellectual ability, morality, athletic competence, and GSE are shown in table four (below). All participants showed an improvement during the karate program, except morality for P1, which decreased (0.05).

Social validation

The participants classified their answers into three categories based on the questionnaire (exercise self-efficacy, physical self-esteem, and GSE). Mean (M) and standard deviations (SD) were calculated across all five participants for the social validation measures, shown for each question below.

- 1- “How important to you is improvement in exercise self-efficacy, physical-self-worth, and global self-esteem?”
 - Exercise self-efficacy: M=4.9, SD= 0.74
 - Physical self-worth: M=5.4, SD= 0.54
 - GSE: M= 6.4, SD= 0.54
- 2- “Do you consider any of these improvements that have occurred to be significant?”
 - Exercise self-efficacy: M=5.3, SD= 0.83
 - Physical self-worth: M=5.8, SD= 1.09
 - GSE: M= 5.25, SD= 1.25
- 3- “How satisfied were you with the program?”
 - M= 6.3, SD= 0.44
- 4- “Has the procedure proved useful to you?”
 - M= 6, SD= 0.7

None of the participants scored under 4 in any of the questions. This means that the scores ranged from 4 to 7. However, through semi-structured interviews the participants had an opportunity to expand and explain their answers. The interviews aimed to identify positive and negative aspects of the program. This feedback may potentially give a critical feedback to us and to those who would like to introduce similar programs with similar aims to young adults with VI. From conducted interviews following two themes existed:

a. Positive and negative aspects of the program:

Two participants were not satisfied with the period of intervention and considered it too short a time period. P1 said that she was not very satisfied with the program stating: “I was satisfied with it (program) a lot but the reason for 0.5 is like I feel we could train more, like had more sessions. But everything else is really good” (P1).

P3 also shared P1’s opinion, stating: “I think it was nice. I just enjoyed it. I felt it was a bit short and there wasn’t too many people. I think I would improve more if you made it longer evidently and make it with more people but I do think it was quite nice” (P3).

Similarly, P2 enjoyed being involved with other people giving the program a score of 6, stating: “I liked being with other people doing sports together. I don’t do it very often so that was fun. So the kind of social aspects that was good” (P2).

P4 and P5, who assessed the program as 6 and 7 respectively, also enjoyed doing the program and this was associated with the pedagogical approach that was followed as well as the focus on philosophical and theoretical aspects of karate: “the conversations between the trainings were very, very important and very stimulating and very enjoyable for me. The theories, the aspects of karate, what do I think about this or that and that. It was interesting to experience that, to talk about that. I enjoyed that” (P4).

P1 and P2 also felt happy that they tried new skills which reflected in their perspective of their improvement, reflected in the following quote by P1: “the very clear outcome is that I found I can be good in sports which I haven’t have these taught before. It’s a new skill, it’s the first time I feel confident about sports” (P1).

Whilst P3 stated that he became more confident about his body and physical strength, P4 employed some of the skills in his personal life, stating: “I use the technique of relaxation, when I am stressed I am using the technique you told us about, the breathing, controlling it, trying to observe what’s happening, don’t react right the way and if you decide to go, you don’t go back just keep going forward. I kind of translated not only to the physical but for my personal life I start something” (P4).

b. Karate program for people with VI

All participants agreed that such programs are needed for people with VI for different reasons. For example, “I think they would benefit from it physically and psychologically” (P5).

More precise were the other four participants who focused on social interaction. For instance, “it improves your fitness, provides a new skill to you, also I loved to meet new people, new friends, like who train with you. I think it is a good thing” (P1).

P3 highlighted more philosophical point, as follows: “martial arts in general, self-defence is really important just to feel confident with yourself. If you are suffering it makes you more comfortable, I mean like suffering in a real life. Not just with physical pain but like you know perceptions in life. I do believe that martial arts has influence in that, teaching about frustration, about how to overcome all situations and to be more calm” (P3).

P4 agreed with P3 that karate programs may improve not only confidence but also self-esteem for the following reason: “on a physical level I believed back being able to do hand-stands. I never expected to do the number of push-ups I did. Honestly I beat my high school record. If I can do that I could come to the class and...just every time leaving the class going back home I felt my self-esteem the global self-esteem was already so high. I felt very, very good going back home. Sometimes I felt really tired coming in but going back the sense of achievement and global self-esteem was just amazing. I felt like the world is not above me but below me. I felt like I am controlling the world” (P4).

Importantly, P2 considered that such programs increase social relationships, stating: “you feel more comfortable because you are with people where you can be interrelating more instead of doing alone when you are visually impaired” (P2).

DISCUSSION

Results of this study suggest that karate practice may improve EXSE in young adults with VI (table 2). Three of the participants (P1, P2, and P5) improved their EXSE during and immediately post the 10-week karate program, whereas the other two participants (P3 and P4) had high EXSE during the baseline and this may account for their apparent lack of improvement. This outcome is in agreement with previous findings that martial arts practice improves exercise self-efficacy (Caldwell, et al., 2009). They found that a 15-week tai chi program had a significant effect on exercise self-efficacy among college students (mean age =21years). Caldwell et al. (2009) reported that the mean

increased from 57.6 to 63.2 (out of 84) ($p = .0005$), which indicates that participants perceived themselves as being more able to control their movements mindfully at the end of the intervention than at the beginning.

Interestingly, tai chi programs (physically very different but from a psychological perspective very similar to our karate program) for 11 and 12 weeks have also had a positive impact on the exercise self-efficacy among older adults (Dechamps, Onifade, Decamps, & Bourdel-Marchasson, 2009; Taylor-Piliae, et al., 2006; Taylor-Piliae, Silva, & Peachey Shermeta, 2012) and those with heart failure (Yeh, et al., 2011; Yeh, et al., 2013).

The present study findings also support previous studies that found martial arts programs improved physical self-worth (Li, et al., 2002; Linxuan, 2011). For instance, Li et al. (2002) found that tai chi exercise for six months improved physical self-worth and GSE. They used the PSPP for the physical self-worth measurement and found an improvement in all sub-domains, namely: attractive body, physical strength, and physical conditioning. We found an improvement in all PSPP sub-domains for all participants (except physical strength for P2) which resulted in a higher score of the physical self-worth across all five participants (table 3). Li et al.'s (2002) and our findings propose a hierarchical structure of the PSPP sub-domains which seems to result in enhanced physical self-worth.

However, another recent study on people with brain injury, with 10 participants in an experimental group (mean age=44.5 years) and 10 participants in a control group (mean age=46.2 years), did not find significant improvement in physical self-worth (Blake & Batson, 2009). Although they did find an improvement in the experimental group it was not significant. Blake and Batson (2009) identified two limitations of the study that probably affected their results: a small sample size and the short duration of the program (once a week for 8 weeks). In contrast to their study, in our study we followed a multiple baseline approach rather than their randomized controlled trial study design. A multiple baseline approach has been described as a viable alternative to the randomized controlled trials which uses smaller sample sizes which are still statistically rigorous (Hawkins, Sanson-Fisher, Shakeshaft, D'Este, & Green, 2007).

Almost all study participants improved their social acceptance, intellectual ability, and morality (except for P1 in morality). During the baseline data collection only P4 had a high social acceptance scores. However, after the karate program all participants (including P4) appear to have developed their social self-esteem (table 4). Conversely, intellectual ability and morality were different at baseline across the participants but all participants (except P1 in morality) showed an improvement in these two domains.

Social relationships were previously identified as one of the main reasons for people practising martial arts (Jones, et al., 2006; Lantz, 2002) and it has been claimed that martial arts practice improves social acceptance (Winkle & Ozmun, 2001). In an earlier study social self-esteem was found to be improved due to taekwondo training among college women students (Finkenberg, 1990). Although a single case study was employed in our study, in which participants trained as a group ($n=5$) for one and a half week and not the whole 10 weeks, it seems that the short period was enough to improve their social self-esteem. Our social validation findings support this explanation, evidenced by the participants expressed desire for longer karate program. Further, participants in the current study reported that they felt accepted by the instructor and were happy that they were invited to participate in the karate program.

In our study intellectual development across all five participants was observed (table 4). The program was based on traditional karate which has physical movements as well as theoretical and philosophical principles (Funakoshi & Nakasone, 2003). Additionally, this traditional training approach that we adopted had intellectual components that may lead to the development of GSE (Ryan, 2008).

Moral development was also found to be improved across four participants (P1 scored lower morality for 0.05). This outcome from our study is in agreement with Lantz's (2002) study in which he conducted interviews with parents of children who were practicing martial arts. The parents stated

that their children improved moral standards due to the martial arts practice. In the present study, we had a similar outcome, possibly due to our pedagogy based on Funakoshi's (2003) traditional karate. The participants in our study were taught karate principles, mainly those developed by Funakoshi (2003), and links were explained on how to employ and integrate some of them into real life situations beyond our karate program. Karate sessions begin and end with rei (respect), there is no first strike in karate, karate stands on the side of justice, and karate goes beyond the dojo are just some of examples of principles.

During the sessions in our study the instructor discussed these principles with the participants and encouraged brief yet critical discussion about their meanings. Interview data indicates that they found this a positive experience. For example, one participant stressed on the impact of these constructive discussions, stating: "The conversations between the trainings were very very important and very stimulating and very enjoyable for me. The theories, the aspects of karate, what do I think about this or that and that. It was interesting to experience that, to talk about that. I enjoyed that" (P4).

Compared to our study, others have reported different outcomes from martial arts intervention studies on GSE across different population groups. The studies that did not find a significant improvement in GSE either included small sample size (Anthony, 2005; Conant, Morgan, Muzykewicz, Clark, & Thiele, 2008), focused on the other primary aims (e.g. cognitive, affective, and physical self-regulation) rather than GSE (Lakes & Hoyt, 2004), or did not clarify the methodology sufficiently (Foster, 1997). In contrast to Schmidt's (1988) findings, the present study is in agreement with others who found a significant improvement in GSE due to martial arts training (Brown, et al., 1995; Finkenberg, 1990; Lee, Lee, & Frkam, 2007; Lee, et al., 2010; Li, et al., 2002; Mustian, et al., 2004; Yin, 2006).

These studies showed that martial arts training for periods from eight and up to twenty four weeks can improve GSE. According to Winkle and Ozmun (2001) GSE improvement may occur because students experience success which they see as their own achievement (a form of self-regulation (Moote, Williams, & Sproule, 2013)) without comparing themselves to others reflecting a mastery approach (Gray, Sproule, & Morgan, 2009). Further, GSE improvement seems to be a result of not only the hierarchical development of self domains (Marsh & Cheng, 2012) in the EXSEM, but also in the SPPCS and SPPA.

Limitations & Implications for Future Research

In this study we used visual inspection and not statistical analysis because of the small sample size. To obtain more objective results we strongly recommend introducing statistical analysis in addition to graphical data, but this requires significantly more participants. Further, future research should focus on the factors that lead to improved exercise self-efficacy and self-esteem and this would probably involve in-depth interviews. Based on the findings of the present study we still do not know whether GSE was improved due to the EXSEM or SPPCS and SPPA domains. Therefore, research on the mechanisms that improve self-efficacy and also the relationships between the EXSEM and non-physical self-esteem domains is warranted.

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Appendix B (Version 2): Parental Consent Sheet – Pilot study

University of Edinburgh

Institute of Sport, Physical Education and Health Sciences

Parental Consent Sheet

The Effect of Non-Contact Karate on Self-Esteem in Children with Visual
Impairment

Main Investigator: Samir Qasim, PhD student

Co-investigators: Dr John Sproule & Dr John Ravenscroft

Dear Sir/Madam,

My name is Samir Qasim, I am a PhD student at the University of Edinburgh, Institute of Sport, Physical Education and Health Sciences. I am investigating whether non-contact karate practice may improve self-esteem in young people and reduce barriers that restrict their participation in regular physical activity. This research is supervised by Dr John Sproule (Head of Sport, Physical Education and Health Science) and Dr John Ravenscroft (Head of Education, Teaching and Leadership).

Why I am writing to you?

I am investigating the effect of a non-contact karate programme on self-esteem and the barriers that limit children in full physical participation. I would like to select your child to participate because he/she lives in this region. I am writing to you to get your consent for your child's participation in this research. After I get your permission, I will ask your child to participate and if he/she agrees then I will start my research because both of you have to agree independently before I can begin.

You do NOT have to agree that your child takes part in the research. Before you decide, you can talk to me, my supervisors, or your child's teachers.

What will your child do?

a- Questionnaire surveys

Your child will answer on two questionnaires three times. Each questionnaire will last around 30 minutes. The first questionnaire includes questions that ask about self-esteem. The other questionnaire includes questions that ask about how active your child is. Your child will answer these two questionnaires at the following times:

- 1- One hour in the beginning of school term (September 2012)
- 2- One hour in the mid-term (October 2012)
- 3- One hour in December 2012.

b- Non-contact karate

Non-contact karate will begin after the first questionnaires have been completed, which is around the 05/09/2012. Your child will participate in a non-contact karate programme supervised by the main investigator (me) twice a week within Physical Education classes. The non-contact karate will be made up of basic movements (stance, ground movement, kicks and punches and defences) and Katas that are essentially a series of attack and defence movements without an opponent. Periodically the main investigator will hold a soft target for children to practice kicking and punching. Your child will never have a contact with other children during the practice. The philosophy of karate which is about improving mind, body, self-respect, and understanding of the self will be provided to your child. The non-contact karate programme will be finished around 14/12/2012. You will be informed about the karate timetable for your child.

Risks and Discomforts:

Risk factors in this research are minimal. At the beginning of the non-contact karate programme your child may feel discomfort in his/her muscles that is normal and

usual when starting new physical activity. All non-contact karate classes will be supervised by me and I am a 3rd Dan Karate Trainer. I have experience in teaching non-contact karate for children with visual impairment for about two years. I am also a qualified teacher of physical education.

Your child will be encouraged to complete the programme but may leave the research whenever he/she wants without giving any reason.

Benefits:

It is expected that your child will increase his/her self-esteem and be more physically active. High self-esteem level and regular physical activity are closely related to overall mental and physical health and well-being of your child.

Results & Confidentiality:

Results of the study will be used for the main investigator's Doctoral dissertation and published in scientific journals but individual information gathered from this study will remain confidential. This means that no one will be able to identify and recognize your child except the main investigator.

Who to Contact:

If you have any questions or require further information please do not hesitate to contact the main investigator or supervisors.

Certificate of Consent

I have read the forgoing information. I have had the opportunity to ask questions about the research and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study and understand that I have the right to withdraw him/her from the study at any time without giving any reason.

Please tick the box

1- I want my child to participate in the questionnaire and non-contact karate programme.

☐

2- I do not want my child to participate in the research

☐

Name of Parent/ Guardian.....

Signature of Parent/Guardian.....

Date.....

Main investigator:

- Samir Qasim

Phone Number: 0131 650 9788

Mobile: 07927150989

Email: S.Qasim@sms.ed.ac.uk

Supervisors:

- Dr John Ravenscroft

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- Dr John Sproule

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Appendix C: Interview consent sheet – Pilot study

University of Edinburgh

Institute of Sport, Physical Education and Health Sciences

Parental Consent Sheet

The Effect of Non-Contact Karate on Self-Esteem in Children with Visual
Impairment

Main Investigator: Samir Qasim, PhD student

Co-investigators: Dr John Sproule & Dr John Ravenscroft

Dear Sir/Madam,

I would like to thank you because you agreed that your child participates in my research. As you know, your child answered self-esteem questionnaire. I would like to interview your child in order to have a better understanding of his/her answers and to support the questionnaire's results. This interview should last for about 45 minutes and all questions will be related to the questionnaire. The interview will be audio recorded and no one will have access to the record. After the interview has been done, I will transcript the interview and use some sentences in my research. No one will know that these sentences are of your child.

Risks and right to withdraw:

There are no any risks of this interview. If your child feels discomfort or for any other reason he/she may stop the interview whenever he/she wants without giving any reason.

Who to Contact:

If you have any questions or require further information please to do not hesitate to contact the main investigator, supervisors, or your child's teachers.

Certificate of Consent

I have read the forgoing information. I have had the opportunity to ask questions about the research and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study and understand that I have the right to withdraw him/her from the study at any time without giving any reason.

Name of Parent/ Guardian.....

Signature of Parent/Guardian.....

Date.....

Main investigator:

- Samir Qasim

Phone Number: 0131 650 9788

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Appendix D (Version 2):_Information and consent sheet – study one

University of Edinburgh

Institute of Sport, Physical Education and Health Sciences

Young People Consent Sheet

Main Investigator: Samir Qasim, PhD student

Co-investigators: Dr John Sproule & Dr John Ravenscroft

Dear Sir/Madam,

My name is Samir Qasim and I am a PhD student at the University of Edinburgh. I am doing research to complete my doctorate. I am researching how you feel about your self and the participation in sport through karate. I am very interested in using karate with young people with visual impairment and I would like to invite you to participate in the study. You do **NOT** have to agree to participate in the research, but you can talk to me, my supervisors, or to any one you feel comfortable.

What will you do?

- 1- I will give you “self-esteem” and “physical self-esteem”, questionnaires several times. It is a set of questions which you can finish in 30 minutes.
- 2- I will also give you another questionnaire about your self-efficacy. I would like you to answer these questions at the same times as the above questionnaires. You can finish this questionnaire in 10 minutes.
- 3- I will ask you some questions through an interview. This interview will be audio recorded.

You will have a great opportunity to engage in in karate lessons for 10 weeks, twice a week. This karate programme will be set at the most appropriate time for you. You will learn how to move your arms, legs, and body as karate players. During the karate programme you will also answer the three questionnaires (4 times). After you complete the programme, you will answer the three questionnaires again.

I am 3rd Dan black belt karate coach and have been working as karate coach for 5 years. I am also a qualified teacher of physical education.

Risks:

Risks in this research are minimal. You may feel discomfort in your muscles when you start karate but this is normal.

Benefits:

I think that you will feel better. Your health will be improved and I hope you are going to enjoy it.

Results and Confidentiality:

No one will be able to identify and recognize your answers except myself. No one will see or know your answers. When I finish my study I will give you different name so no one can identify you in my doctoral dissertation and journals.

Right to refuse or withdraw:

You can refuse to answer the questionnaires or to stop karate programme at any stage you want and you do not have to give a reason.

Who to contact:

If you would like to ask me or my supervisors anything about this research just contact us on any of the contact details that are at the end of this letter.

Certificate to Consent:

I have read the sheet. I have had the opportunity to ask questions about the research and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without giving any reason.

Name of Participant.....

Signature of Participant.....

Date.....

Main investigator:

- Samir Qasim

Phone Number: 0131 650 9788

Mobile: 07927150989

Email: S.Qasim@sms.ed.ac.uk

- Dr John Sproule

Phone Number: 0131 651 6135

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Supervisors:

- Dr John Ravenscroft

Phone Number: 0131 651 6181

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Appendix E: Karate intervention programme

Programme components:

The programme was divided into two main categories; theoretical explanation of the main karate principles developed by Funakoshi & Nakasone (2003) and practical performance. Following is an explanation of these two main components of the programme.

a) Theoretical explanation of the main karate principles:

Gichin Funakoshi established twenty karate principles that were expanded and clarified by his contemporary Genwa Nakasone. These twenty principles that were explained to the students in the case study (chapter 4), were in the line with a certain technique as it the programme tables shows.

b) Practical performance components

Below is an explanation of every session including its aims and the context. The estimated that are presented in the sessions below were not always applied 100% as the table shows due to the individual differences. However, I presented an approximate time that was planned. In addition, some exercises need to be taught faster/slower based on the student's performance of a certain technique. Since I had five participants, the below plan and aims that I developed prior to the programme were close to the programme that was conducted despite minor changes in the programme and its flexibility.

Session 1

Aims: to introduce a participant into karate by explaining what its definition and aims + to teach the participant two karate blocks.		Time (minutes)
Warm-up	Introducing into karate and learning the 1 st karate principle and its importance	5
	Running and stretching exercises that included the whole body	10
Training activity	Closing fist (both hands)	3
	Gedan braai (lower block): only left arm then only right arm (following part to whole method)	12
	Left arm and right arm alternatively	
	Age uchi (upper block): left arm then right arm (following part to whole method)	12
	Left arm and right arm alternatively	5
	Non-karate activities interspersed karate activities: sit ups	5
	Drinking water and rest	
Cool down	Stretching exercises & questions	8
Notes	Principle: Do not forget that karate-do begins and ends with rei	
	Focus on the hips during the performance	

Session 2

Aims: learning principle 2 + learning tone stance		Time (minutes)
Warm-up	Learning the 2 nd karate principle and its importance	5
	Running and stretching exercises that included the whole body	10
Training activity	Revising the previous session	10
	Zenkutsu dachi (front stance): hands placed on the hips, once left leg is correct then right leg	10
		10
	Zenkutsu dachi performing gedan barai with left leg and left arm	5
	Non-karate activities interspersed karate activities: sit ups and push ups	
Cool down	Stretching exercises & questions	8
Notes	<p>There is no first strike in karate.</p> <p>Focus on the hips during the performance</p> <p>Did not teach walking to avoid a potential feeling of boring. Instead, I focused on the leg-arm coordination (step 3)</p> <p>In an agreement with the principle 2, controversy to the “usual” teaching of karate, I also did not teach the participant any strikes.</p>	

Session 3

Aims: learning principle 3 + improving leg-arm coordination		Time (minutes)
Warm-up	Learning the 3 rd karate principle and its importance	5
	Running + shuttle run and stretching exercises that included the whole body	10
Training activity	Revising the previous two sessions	8
	Zenkutsu dachi with gedan barai: right leg and arm	5
	Zenkutsu dachi walk (hands placed on the hips)	8
	Zenkutsu dachi walk performing gedan barai	8
	Zenkutsu dachi walk performing age uchi	5
	Non-karate activities interspersed karate activities: sit ups, push ups and stretching exercises	7
Cool down	Questions + shuttle run	5
Notes	Karate stands on the side of justice.	
	Focus on the hips	

Session 4

Aims: learning principle 4 + improving leg-arm coordination and agility + learning the basic strike		Time (minutes)
Warm-up	Learning the 4 th karate principle and its importance	5
	Running + shuttle run + zig zag and stretching exercises that included the whole body	10
Training activity	Revising the previous two sessions	5
	Oi zuki (front strike): without stances	5
	Ozi kuzi with zenkutsu dachi (both arm)	10
	Backword zenkutsu dachi	5
	Oi zuki backword (from zenkutsu dachi)	10
	Non-karate activities interspersed karate activities: sit ups, push ups and stretching exercises	5
Cool down	Questions + shuttle run	5
Notes	First know yourself, then know others	
	Focus on the hips	

Session 5

Aims: learning principle 5 + improving leg-arm coordination and agility + reaction time		Time (minutes)
Warm-up	Learning the 5 th karate principle and its importance	5
	Running + shuttle run + zig zag and stretching exercises that included the whole body	10
Training activity	Revising the previous two sessions	15
	Improving a technique of the previous skills (gedan barai, age uchi, zenkutsu dachi, and oi zuki)	15
	Followed techniques:	
	Performing a skill on a vocabulary sign	
	Performing a skill on a tactile sign	
	Non-karate activities interspersed karate activities: sit ups + push ups	8
Cool down	Game: running behind a partner (instructor) until catching him/her + questions	7
Notes	Principle: Mentality over technique	

Session 6

Aims: learning principle 6 + improving reaction time + introducing the participants to kata 1		Time (minutes)
Warm-up	Learning the 6 th karate principle and its importance	5
	Shuttle run + zig zag and stretching exercises that included the whole body	8
Training activity	Revising session 4	7
	Combining gedan braai and oi zuki (within zenkutsu dachi)	8
	Introducing the first two movements (1+2) of Heian Shodan (1 st kata)	10
	Bunkai (practical explanation) of the first two kata movements	10
	Non-karate activities interspersed karate activities: sit ups + push ups	5
Cool down	Stretching exercise + questions	5
Notes	<p>Principle: The mind must be set free</p> <p>Participants do not perform bunkai but learn possibilities.</p>	

Session 7

Aims: learning principle 7 + learning the principles of kumite (sparring)		Time (minutes)
Warm-up	Learning the 7 th karate principle and its importance	5
	Shuttle run + zig zag	5
Training activity	Learning the (kamayt) sparring stance with an appropriate guard	5
		15
	Learning feet movement forward and backward (also includes more steps forward and more steps backward)	
	Revising the first two movements of Heian Shodan and its bunkai	15
	Non-karate activities interspersed karate activities: stretching exercises	5
Cool down	Stretching exercises + questions	5
Notes	Principle: Calamity springs from carelessness	
	Stressing on the importance of knees	

Session 8

Aims: learning principle 8 + learning the principles of kumite (sparring) + learning the other three movements of Heian Shodan		Time (minutes)
Warm-up	Learning the 8 th karate principle and its importance	5
	Shuttle run + zig zag + stretching exercises that focused on the lower body	10
Training activity	Revising the previous session regarding the kumite	5
	Introducing a block (strike) to the previous step	5
	Revising the first two movements of Heian Shodan	5
	Learning the other three movements (3+4+5)	20
	Non-karate activities interspersed karate activities: sit ups + push ups	5
Cool down	Stretching exercises + questions	5
Notes	<p>Principle: karate goes beyond the dojo</p> <p>As it was expected, big individual differences were clear during performing the new two movements of Heian Shodan</p> <p>Answering the questionnaires</p>	

Session 9

Aims: learning principle 9 + learning the principles of kumite (sparring) + learning the other two movements of Heian Shodan		Time (minutes)
Warm-up	Learning the 9 th karate principle and its importance	5
	Stretching exercises that focused on the lower body + running	10
Training activity	Revising the previous session regarding Heian Shodan	15
	Continuing bunkai	15
	Revising kumite	5
	Non-karate activities interspersed karate activities: sit ups + push ups	5
Cool down	Questions + stretching exercises	5
Notes	Principle: Karate is a lifelong pursuit	
	Focus on the hips	

Session 10

Aims: learning principle 10 + improving reaction		Time (minutes)
Warm-up	Learning the 10 th karate principle and its importance	5
	Running + stretching exercises for the whole body	10
Training activity	Revising Heian Shodan and its bunkai with more effectiveness	20
	Revising kumite with vocabulary and tactical signs	15
	Non-karate activities interspersed karate activities: abdomen exercises	5
Cool down	Game (session 5) + questions	5
Notes	<p>Principle: Apply the way of karate to all things. Therein lies its beauty</p> <p>Participants have to employ what they have learned from karate in the game</p>	

Session 11

Aims: learning principle 11 + learning four new kata movements and front kick		Time (minutes)
Warm-up	Learning the 11 th karate principle and its importance	5
	Running + stretching exercises for the whole body	10
Training activity	Learning new four movements of Heian Shodan (6+7+8+9)	10
	Revising bunkai	10
	Learning the first step of Mai geri (front kick)	10
	Non-karate activities interspersed karate activities: push ups + stretching exercises	8
Cool down	Game: kumite jumping with a partner + questions	7
Notes	<p>Principle: Karate is like boiling water: Without heat, it returns to its tepid state</p> <p>Mai geri: focus on the knee, hips and toes.</p>	

Session 12

Aims: learning principle 12 + self-perception improvement + learning mai geri		Time (minutes)
Warm-up	Learning the 12 th karate principle and its importance	5
	Running + stretching exercises for the whole body	8
	Game (previous session cool down section)	5
Training activity	Revising Heian Shodan	8
	Continue bunkai	10
	Continue mai geri	10
	Non-karate activities interspersed karate activities: sit up and push up challenge	10
Cool down	Stretching + questions	5
Notes	<p>Principle: Do not think of winning. Think rather of not losing</p> <p>Answering the questionnaires</p> <p>Challenge was developed based on the abilities of every individual</p>	

Session 13

Aims: learning principle 13 + learning the new two kata movements		Time (minutes)
Warm-up	Running + stretching exercises for the whole body	8
	Game (previous session cool down section)	5
Training activity	Revising Heian Shodan	7
	Learning the new two movements and its bunkai (10+11)	15
	Learning the 12 th karate principle and its importance	20
	Learning how to move according to the partner's movements	5
Cool down	Questions	
Notes	<p>Principle: Make adjustments according to your opponent</p> <p>Reminded the participants about the principle six</p> <p>Last part of the activity included breaks</p>	

Session 14

Aims: learning principle 14 + improving legs' strength		Time (minutes)
Warm-up	Learning the 14 th karate principle and its importance	5
	Running + stretching exercises for the whole body (focus on the legs)	12
Training activity	Revising kata	10
	Improving mai geri	20
	Learning different strikes combinations for kumite (without partner)	5
	Non-karate activities interspersed karate activities: sit up and push up	5
Cool down	Stretching + questions	3
Notes	Principle: The outcome of a battle depends on how one handles emptiness and fullness (weakness and strengths)	

Session 15

Aims: learning principle 15 + learning new two Heian Shodan movements		Time (minutes)
Warm-up	Learning the 15 th karate principle and its importance	5
	Game: session (5)	3
	Stretching exercises	5
Training activity	Revising Heian Shodan	8
	Learning two new movements of Heian Shodan and its bunkai (12+13)	15
		15
	Improving kumite skills (sparring instructors but without kicking and striking)	5
	Non-karate activities interspersed karate activities: abdominal exercises	
Cool down	Stretching + questions	5
Notes	Principle: think of the opponent's hands and feet as swords	
	Improving kumite focused on improving feeling skills	

Session 16

Aims: learning principle 16 + learning new movements from Heian Shodan		Time (minutes)
Warm-up	Learning the 16 th karate principle and its importance	5
	Running + stretching exercises for the whole body	10
Training activity	Revising Heian Shodan	7
	Learning new movements from Heian Shodan and its bunkai (14+15+16+17)	15
		10
	Learning additional self-defence skills	5
	Non-karate activities interspersed karate activities: push ups and pull ups	
Cool down	Stretching + questionnaires	5
Notes	<p>Principle: When you step beyond your own gate, you face a million enemies</p> <p>Learning basic self-defence skills that begin from contact</p> <p>Answering the questionnaires</p>	

Session 17

Aims: learning principle 17 + learning shoto uke + improving balance and lower strength		Time (minutes)
Warm-up	Learning the 17 th karate principle and its importance	5
	Running and jumping (focused on the balance) + stretching exercises for the whole body	8
Training activity	Revising Heian Shodan and its bunkai	10
	Mai geri in a combination with oi zuki	7
	Learning self-defence skills from karate stances and natural stances	10
		10
	Learning shoto uke (knife hand block)	5
	Non-karate activities interspersed karate activities: abdominal exercises and leg strength improvement	
Cool down	Stretching exercises and questions	5
Notes	Principle: Kamae (ready stance) is for beginners: Later, one stands in shizentai (natural stance)	
	Leg strength improvement was through learning a new stance named kokutsu dachi (back stance)	

Session 18

Aims: learning principle 18 + learning new movements from Heian Shodan		Time (minutes)
Warm-up	Running and stretching exercises during the running	12
Training activity	Revising shoto uke	8
	Shto uke from kokutsu dachi	15
	Continue Heian Shodan and its bunkai (18+19)	15
	Non-karate activities interspersed karate activities: abdominal exercises + pull ups	5
Cool down	Stretching exercises + questions	5
Notes	<p>Principle: Perform kata exactly; actual combat is another matter</p> <p>The principle was explained during explaining the bunkai of shoto uke because shoto uke can be used for defence or attack purposes.</p>	

Session 19

Aims: learning principle 19 + learning new movements from Heian Shodan		Time (minutes)
Warm-up	Running and performing stretching exercises during the running	12
Training activity	Revising the previous session	10
	Continue Heian Shodan and its bunkai (20+21)	20
	Non-karate activities interspersed karate activities: different games	10
Cool down	Stretching + questions	5
Notes	<p>Principle: Do not forget employment or withdrawal of power, the extension or contraction of the body, the swift or leisurely application of technique</p> <p>The principle was explained during explaining the bunkai</p>	

Session 20

Aims: learning principle 20 + general revision		Time (minutes)
Warm-up	Learning the 20 th karate principle	5
	Game (session 5)	5
	Stretching exercise	8
Training activity	Revising Heian Shodan	10
	Mai geri + mai geri with oi zuki	5
	Bunkai of Heia Shodan	15
	Revising self-defence skills	10
Cool down	Stretching	2
Notes	Principle: Be constantly mindful, diligent, and resourceful in your pursuit of the way	
	Answering the questionnaires	

Appendix F: Information and consent sheet- study two

University of Edinburgh

Institute of Sport, Physical Education and Health Sciences

Information & Consent Sheet

Main Investigator: Samir Qasim, PhD student

Co-investigators: Dr John Sproule & Dr John Ravenscroft

Dear Sir/Madam,

My name is Samir Qasim and I am a PhD student at the University of Edinburgh. I am doing research to complete my doctorate. I am researching the effect of martial arts on self-esteem in people with visual impairment and I would like to invite you to participate in the study. You do **NOT** have to agree to participate in the research, if you want to ask any questions you can ask me or my supervisors.

What will you do?

I will conduct an interview in which you will talk about your experience in martial arts and how it influenced your life. The main topics of the interview will address the development of your visual impairment, your social life, your physical activity through the lifespan, how did you begin doing martial arts (when, why, and where), whether martial arts influenced you in somehow, how do your training look like, championships you were involved in, your knowledge about the philosophy of martial arts, and your plans for the future. This interview will be audio recorded and will last for about two hours.

Benefits:

I hope that your story will encourage other young people with visual impairment to take part in martial arts.

Risks:

Risks in this research are minimal. If you feel discomfort during the interview you have a right not to answer any question or to stop the interview without giving any reason.

Results and Confidentiality:

No one will be able to identify and recognize your answers except myself. No one will see or know your answers. When I finish my study I will give you a pseudonym so no one can identify you in my doctoral dissertation and subsequent publications.

Right to refuse or withdraw:

You can refuse to answer any question or to stop the interview at any stage you want and you do not have to give a reason.

Who to contact:

If you would like to ask me or my supervisors anything about this research just contact us on any of the contact details that are at the end of this letter.

Certificate to Consent:

I have read and understood the information sheet. I have had the opportunity to ask questions about the research and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without giving any reason.

Name of Participant.....

Signature of Participant.....

Date.....

I consent voluntarily to conduct the interview and to be audio recorded by the main investigator.

Name of Participant.....

Signature of Participant.....

Date.....

Main investigator:

- *Samir Qasim*

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- *Dr John Sproule*

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Supervisors:

- *Dr John Ravenscroft*

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Appendix G: Martial artists interview questions guideline

Demographic information:

- 1- General introduction Year of birth
- 2- The presence of additional disability
- 3- Parents:
 - a- Sighted vs VI?
 - b- Occupation
 - c- Did they participate in sport?
 - d- Did they influence your decision to be physically active?

School education and occupation:

- 4- School education experiences(special school vs regular) through different periods (primary, secondary, high, university)

Communication:

- 5- Exploring the main challenges that sighted people have when dealing with VI people?

Exercise:

- 6- Sport (exercise) experience from childhood until today
- 7- Reasons for practicing martial arts
- 8- General martial arts knowledge (e.g. philosophy, who taught them)
- 9- Description of the training sessions
- 10- Development of the attitudes towards competitions during the years of the training
- 11- Investigating instructor-student relationship
- 12- VI vs sighted in martial arts
- 13- Identifying martial arts benefits (physical and psychosocial benefits)
- 14- Exploring characteristics (situations) that people with VI need to have to be good in martial arts
- 15- identifying ways to encourage people with VI to be more physically active

16- exploring negative aspects of martial arts

General questions:

17- Expressing general feeling about being who they are

18- Self-description

19- Identifying future plans

Appendix H: Information and consent sheet – study three

University of Edinburgh

Institute of Sport, Physical Education and Health Sciences

Instructors Information & Consent Sheet

Main Investigator: Samir Qasim, PhD student

Co-investigators: Dr John Sproule & Dr John Ravenscroft

Dear Sir/Madam,

My name is Samir Qasim and I am a PhD student at the University of Edinburgh. I am doing research to complete my doctorate. I am researching the effect of martial arts on self-esteem in people with visual impairment and I would like to invite you to participate in the study. You do **NOT** have to agree to participate in the research, if you want to ask any questions you can ask me or my supervisors.

What will you do?

I will conduct an interview in which you will talk about your experience in martial arts and how it influenced your life. The main topics of the interview will address the development of your idea to train people with visual impairment, coaching philosophy you follow in your trainings, how do you teaching lessons look like, and the differences between teaching people with visual impairment and sighted people. This interview will be audio recorded and will last for about 1.5 hour.

Benefits:

I hope that your story will encourage not only young people with visual impairment to take part in martial arts, but also coaches to begin working with people who are visually impaired.

Risks:

Risks in this research are minimal. If you feel discomfort during the interview you have a right not to answer any question or to stop the interview without giving any reason.

Results and Confidentiality:

No one will be able to identify and recognize your answers except myself. No one will see or know your answers. When I finish my study I will give you a pseudonym so no one can identify you in my doctoral dissertation and subsequent publications.

Right to refuse or withdraw:

You can refuse to answer any question or to stop the interview at any stage you want and you do not have to give a reason.

Who to contact:

If you would like to ask me or my supervisors anything about this research just contact us on any of the contact details that are at the end of this letter.

Certificate to Consent:

I have read and understood the information sheet. I have had the opportunity to ask questions about the research and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without giving any reason.

Name of Participant.....

Signature of Participant.....

Date.....

I consent voluntarily to conduct the interview and to be audio recorded by the main investigator.

Name of Participant.....

Signature of Participant.....

Date.....

Main investigator:

- *Samir Qasim*

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Appendix I: Instructors interview questions guideline

Exploring martial arts background

- 1- When and how did you start martial arts training?
- 2- What is your martial arts level?

Identifying personal benefits of martial arts practice

- 1- What benefits did you have from practicing martial arts?
- 2- What do you think were the main reasons for these benefits to occur?

Exploring teaching experience and background

- 1- How did you start teaching martial arts?
- 2- What was your motivation for teaching martial arts?
- 3- What coaching classifications do you have?

Exploring teaching/coaching philosophy

- 1- How do you structure your classes?
- 2- What are the goals of your teaching/coaching?
- 3- How do your training sessions look like?

Exploring experiences of teaching martial arts to people with VI

- 1- How and why did you start teaching people with VI?
- 2- Did you have any knowledge about people with VI?
- 3- What were your major concerns regarding people with VI? How did you overcome them?
- 4- From your point of view, what are the benefits that martial artists with VI had from martial arts?
- 5- What are the main reasons for these benefits?
- 6- Can you provide some examples supporting your argument regarding these benefits?
- 7- What is your relationship with students?
- 8- What would be your message to instructors who are interested in teaching people with VI but do not know how to teach them?

Training considerations when teaching people with VI

- 1- What were your main challenges for teaching people with VI?
- 2- Can you please explain your teaching strategy/pedagogies as some who does not see cannot receive visual information and feedback?
- 3- How do you manage classes having participants who are sighted and VI?